


# AMERICAN

# FORESTS



FEBRUARY 1945

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Gun crew officers, in helmets and flash gear, keep careful watch following an attack on their carrier. Action took place in the Southwest Pacific. Officer at right is relaying observations by telephone.

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# AMERICAN FORESTS

VOLUME 51

FEBRUARY, 1945

NUMBER 2

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### THE COVER

Its pond stocked with logs, this  
California mill is steamed up for the  
final push for Victory  
Photograph by the Western Pine Association

## American Forests

Published monthly by

THE  
AMERICAN FORESTRY  
ASSOCIATION

919 Seventeenth Street  
Washington 6, D. C.

The American Forestry Association, founded in 1875, is a citizens' organization for the advancement of intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation.

Its educational activities seek to bring about a better appreciation and handling of these resources, whether publicly or privately owned, that they may contribute permanently to the welfare of the nation and its people.

In addition to publication of its magazine—AMERICAN FORESTS—designed to keep before the people of the country important conservation questions and issues, the Association carries on educational work in various fields including forest fire prevention, reforestation, protection of wildlife, prevention of soil erosion, preservation of wilderness areas, establishment of national forests and parks, advancement of forestry by private endeavor, the teaching of conservation in schools and the promotion of research in timber growing and forest utilization.

The Association is independent and non-commercial, and has no connection with any federal or state governments. Its resources and income are devoted to the advancement of conservation in the interests of public welfare, and all citizens are welcomed to membership.

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# MY FAVORITE TREE

By LOUIS BROMFIELD

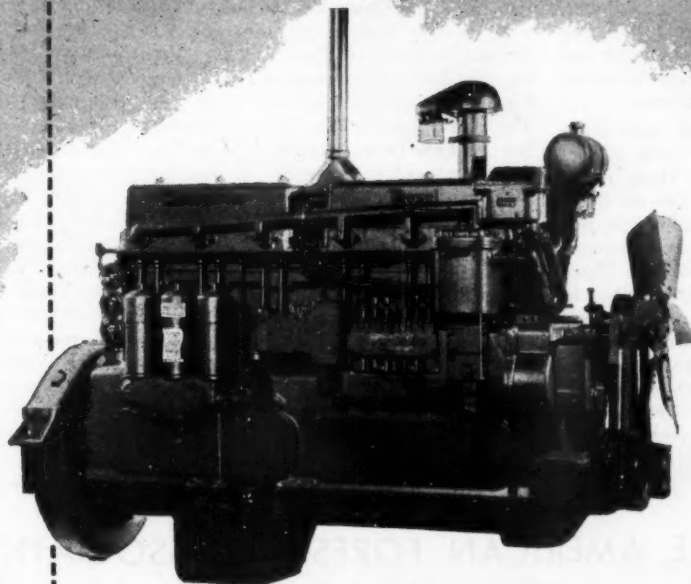
Author - Conservationist

FOR ME the most beautiful of trees is the sycamore or American plane tree. No tree, I think, possesses greater majesty than this one with its rich green leaves and its mottled bark, a tree as beautiful against the winter landscape with its white branches raised against the grey winter sky, as it is in midsummer standing in the lowlands on the borders of a clear flowing stream. In my mind it is associated with bottom pastures and blue grass and fat cattle and wild mint, with swimming holes and deep riffles where the small-mouth bass lies in its shadow. Wherever the sycamore flourishes naturally, there is certain to be water or dampness nearby.

I like the way it moves along the creek banks and lowlands, seeding itself on every sandbank, anchoring the soil and ornamenting the landscape. I like its rapid growth and the pattern of its branches as if they were arranged in a perfect composition by an artist. I like its sturdiness and look of solidity. In our bottom pasture clumps of sycamore grow here and there, covering the earth with their shade, sheltering the cattle from the hot sun of July and August. The sycamore is a farmer's tree. It is a friendly tree growing where soil is rich and cherished.



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# THE FOREST EXCHANGE . . .

## Still More About Three Forks

SIR: In the January issue, Louise and Stanley Cain, in "More About Three Forks," set out to answer questions raised in my article "Three Forks—Lost Province of the Great Smokies," which appeared in the November number. Passing over efforts to support their case by a personal attack on my sincerity and objectives, I would like to call attention to inaccuracies in their argument.

First, their article seems more of a defense of the National Park system than a clarification of the Three Forks situation. And certainly I did not question the wisdom of national parks, nor of the need for research areas in general. I merely pointed out that the Three Forks area has become inaccessible to both laymen and scientists, and since it is the very heart of the Great Smoky Mountains National Park and is not being used as a useful research area yielding scientific information of value, it is not serving a purpose sufficiently impor-

tant to offset its loss to the public, lay as well as scientific.

My charge, and I reiterate it, is that national park authorities have locked up the very heart of the park, making it so inaccessible that the great bulk of scientists, even their own, do not use it. The area, as now designated, does not "offer peace of soul to those who are beset by the increasing tensions of modern life." These folks are left out in the cold. The Cains say this is a "trivial" matter, but we here in western North Carolina do not regard it as such. It was not purchased and given to the government at "trivial" effort and expense.

Only last June a well-known scientist queried me as to how he could get into Three Forks *on foot*—not by horseback. I sketched a map and attempted thereon to show the confusing and vague landmarks he must watch out for if he were to avoid crawling for miles through an impenetrable jungle of laurel and rhododendron, and where a back pack with

food, camping equipment, scientific instruments, or other impedimenta would be an insurmountable liability. He has not as yet gone into Three Forks. There are other cases which, to my knowledge, parallel this, one involving a famous woman botanist. Thus, when the Cains write that "scientists are personally grateful for the park's stand," as regards Three Forks, they cannot be speaking for all scientists.

I cannot say, of course, whether the Cains' article was based on first-hand information or on information provided by the National Park Service. I do know, however, that after park authorities read a copy of my article, three members of the park staff made a trip into Three Forks to find out what trail conditions were. Why, may I ask, if this research area is serving a useful purpose—is even being used—did the Service not have this information at hand?

Why, only late this past summer, was  
(Turn to page 87)

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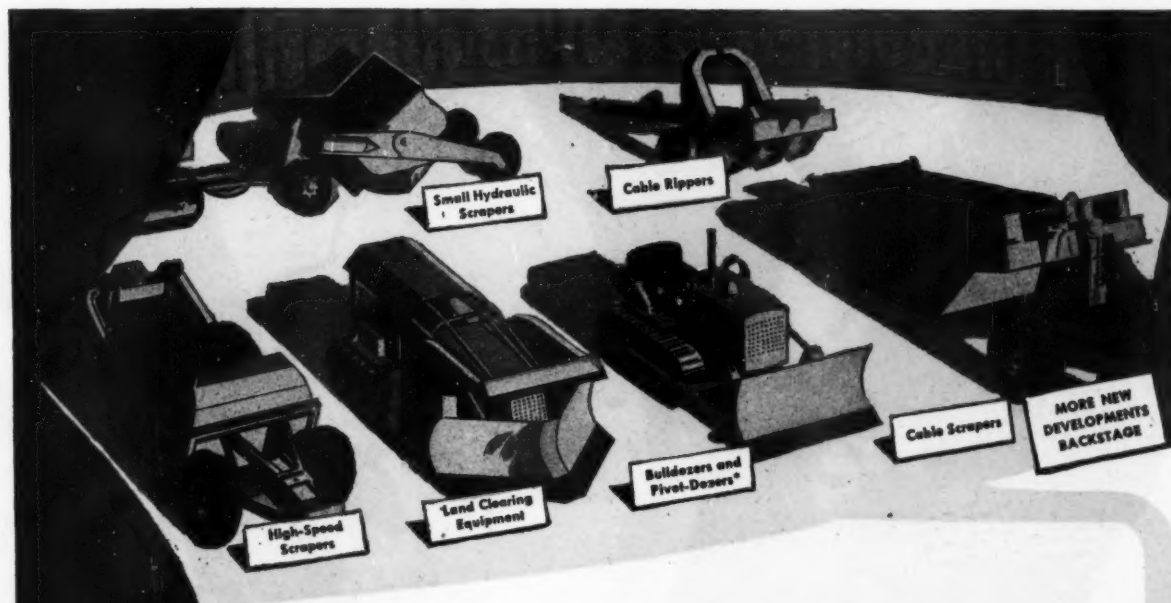
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STANIS-THAUS



# Editorial

## One Source of Greatness

THIS February, when the figure of George Washington again walks down the Road of Remembrance, Americans, whether in high places or low, would do well to re-examine one source of his greatness. We have in mind the George Washington who found comfort and inspiration in trees.

"The blossom of the crab tree is unfolding and shedding its fragrant perfume." This entry in his diary during the turbulent days of freedom's birth in this country, speaks eloquently of his affinity with Nature. But his was not wholly an emotional response. He liked to work with trees, and no matter how numerous and complex were the problems he was called upon to solve, he always found the heart and time to search the wild forests surrounding Mount Vernon for young trees to transplant in his "shrubberies," his "wilderness" along his "serpentine walk."

"Rode to my Mill Swamp . . . and

to other places in search of the sort of Trees I shall want for my walks, groves and wilderness," was typical of entries in his diary during the period he was shouldering the destiny of a new nation and a new freedom. Or, "Put two thousand of the common chestnut into a box of dry sand—a layer of each—and two thousand of the Spanish chestnut in like manner, to plant out in the Spring. These were put into sand in a day or two after they were taken from the Trees."

It was characteristic of this great American to symbolize friendship through the medium of trees. As an example of this, it is recorded that during a visit to Mount Vernon of one of his Revolutionary generals, Washington, with his own hands, dug from his garden two young horsechestnut trees which he presented to his guest as a token of friendship. These were carried on horseback over the mountains into the hills

of Pennsylvania, to be planted at Bath. One survived until a decade ago, to gain national fame as the "Friendship Tree." As a token of love and respect for his mother, he personally planted thirteen trees at her home in Fredericksburg, Virginia—one for each of the thirteen colonies.

George Washington has gone from this earth, but he has not gone from the hearts of the American people. This is why today, when we are bleeding to preserve the way of life he fashioned for us, the high qualities of his greatness should be re-examined. We may then again be reminded that the primary tenet of his faith was deeply rooted in Mother Earth—that his great strength and fortitude, his unyielding belief in the ideals of freedom and equality, had their genesis in the forest. And, remembering this, we may ourselves, during these critical days, drink from the same well-spring of life.

## We Need Old Trees

ALTHOUGH the exigencies of war justify the pressure we are exerting upon our few remaining stands of virgin timber, no American wants to see old-growth trees completely vanish from our landscape. In the field of science their loss would be irreparable, for they are a living link with the past; as museum pieces for the benefit of Americans yet to be born, they are an asset of incalculable dimensions. And to those of the present generation who find humility and peace of heart in the presence of old and great trees, their disappearance from woodland and field would be a tragedy of the first order.

For what architecture of man can substitute for a cedar with a trunk as large as that of the largest redwood?—or the massive limbs of an ancient moss-draped oak that could shade a quarter of a city block?—or a fir so tall that its uppermost branches would reach the halfway

mark on the 555-foot Washington Monument? What creation of man can replace a gnarled old sycamore forty-eight feet in circumference?—or a pine thirty-one feet?—or an elm thirty feet? Consider, as a yardstick, that an eight-foot shade tree would be highly prized for its size on any street or lawn—that the trunk of the largest known redwood is sixty-three feet in girth.

These figures are not drawn from the imagination. They are on record with The American Forestry Association, the fruit of a four-year search for the largest living specimens of native American trees. As of January 1, the giants of more than 200 species (see January issue) had been established—some temporarily, it may prove, until larger specimens are found. But the hundreds of big tree hunters cooperating in this project hold little hope of bettering the record of Maryland's white oak, twenty-

eight feet in girth, or Washington's Sitka spruce, fifty feet, or Florida's bald cypress, forty-two feet, and many others of exceptional size or limited range.

The purpose of this big tree hunt is twofold—first, to determine the outstanding specimens of our vanishing original forest and, second, to stimulate action for their preservation. And since preservation is a matter of primary concern to all citizens, both present and future, the challenge to see that it is achieved must be taken up by the public. The people of Maryland have demonstrated one way this can be done by incorporating the nation's largest white oak in their state park system. There are other ways. The important thing is to act now, so that these giants of freedom may be protected from fire, disease and the ax to stand to the end of their natural lives as cherished landmarks in the saga of America.



# AN "AIR-ARM" FOR FORESTRY

By S. L. FROST



Winged smokechaser — low-speed coupe type plane returning from a mission over the forests

## The "Texas Forest Patrol," Model Unit Developed by CAP and the Texas Forest Service, Opens Up Interesting Possibilities in Forest Protection

HIGH in his lookout tower, overlooking a far-reaching expanse of timber in southeast Texas, Jack Phelps, hard, rough and capable fire patrolman, was plainly puzzled. That smoke on the distant horizon wasn't acting right. He knew it was from a woods fire burning in one of the "hot-spots" of his district and that by all rights it should be spreading fast, sending up a billowing cloud of smoke. But instead the smoke was decreasing. It didn't make sense and Phelps "aimed" to find out the reason.

When he arrived at the fire thirty minutes later, Phelps was pleasantly surprised to find it almost out and still more surprised to find three negroes savagely whipping out the last flames with pine tops.

"Mistuh boss!" one of them shouted, waving a pink slip of paper. "Heahs our authorization to fight dis fiah. Dey done dropped it to us in a red bag from an airplane. 'Hit says dey needs us to volunteer to put out dis fiah and help save de wood for de warh!"

Messages dropped from the sky are only part of the operations of aerial forest patrol, a new experiment which foresters in the Lone Star State have been trying out this past year in their fight against forest fires. Organized as a joint undertaking between the Civil Air Patrol and Texas Forest Service, this "air-arm" forest fire protection unit is today flying planes during high fire hazard periods over 9,000,000 acres of timberland in thirty-one east Texas counties.

The CAP unit was officially launched at Dallas on January 6, 1944, at a conference between Colonel Earle L. Johnson, national commander of Civil Air Patrol, Lieutenant Colonel D. Hardol Byrd, Texas CAP wing commander, and W. E. White, director of the Texas Forest Service. It was "to provide planes and trained personnel to fly fire patrol at the request of the state forest service."

"Be careful with that fire!" is the message dropped by the aerial observer to this farmer burning his field

The request was not a new one for Civil Air Patrol. From bases along the Atlantic and Gulf Coast seaboards, dauntless CAP crews had been flying millions of miles in search of Axis subs. CAP had also flown on hours of target towing, border patrol and countless other missions. When Colonel Johnson told Director White, "Civil Air Patrol can do this job for you," his statement was backed by experience.

Although an auxiliary of the U. S. Army Air Forces, CAP has always been a volunteer organization. The Texas Forest Patrol unit is no exception; it draws its personnel from all walks of life. One of the pilots is an ice cream manufacturer; another works in the shipyards; another repairs radios. Forest patrol is not a full-time activity, but, like true firemen, some of its personnel keep their uniforms, which they wear when on active duty, within easy reach, ready to go at a moment's notice.

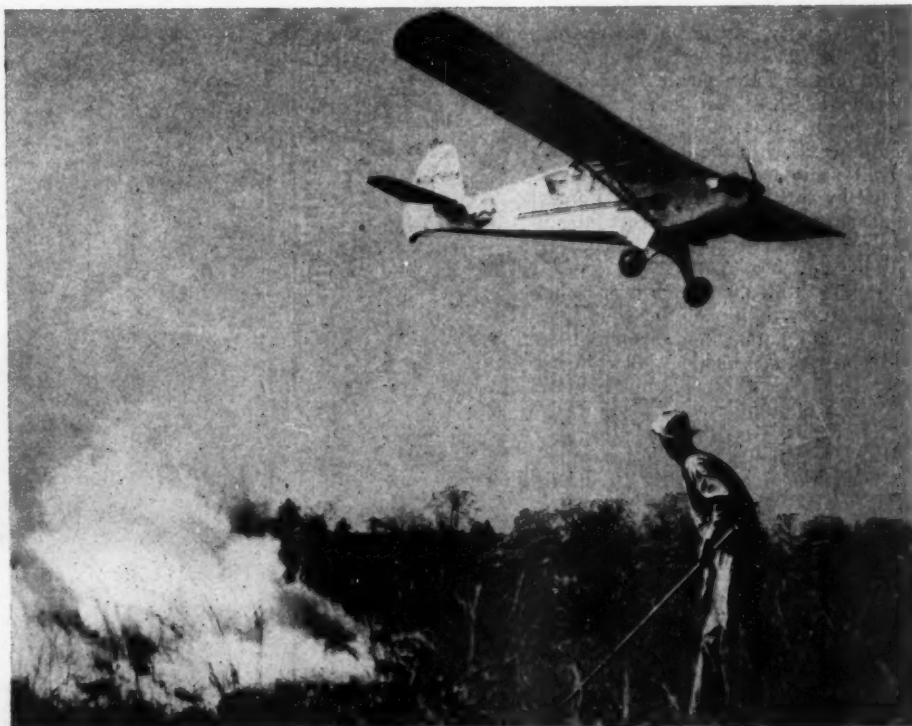
When a plane lifts its wings into the sky for a mission over the forest, its crew represents trained aerial forest patrolmen imbued with the sole purpose of helping to save the timber below—for to them forest patrol is not a money-making

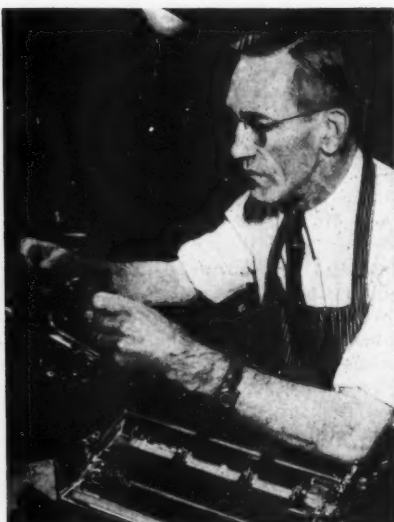


proposition. The Texas Forest Service, however, does pay for the patrol on an hourly basis, as prescribed by national CAP headquarters directives, to help plane owners cover operation and maintenance costs and their own expenses. Some of the Texas forest industries are backing the project with financial contributions.

For its planes, forest patrol depends on a slow sixty-five to seventy-five horsepower ship, similar in many respects to the ones which have been serving the Army Air Forces so brilliantly on liaison missions. Their cruising range averages two to three hours with a gas consumption of four to five gallons an hour. The slow plane has been found to be of advantage in observation work and it is capable of landing at slow speeds in small areas.

The idea of aerial patrol of the forests is not original with Texas. The U. S. Forest Service has experimented with





The CAP Forest Patrol is a volunteer organization. Pilot Ken Hallaran (left) operates a radio shop — Observer Guy Deaton (right) is a typewriter salesman

planes for this purpose, as have several other states, both with their own forestry organizations and in cooperation with the Civil Air Patrol. But a number of innovations are being tried out by the Texas Forest Patrol which offer promising possibilities. Indeed, CAP considers the Texas unit the model one for the nation.

Two-way radio communications are the heart of its operations. To take care of the ground work the Texas Forest Service has built five stations in its protection territory, ranging in power from 200 to 400 watts and operated on an assigned forestry frequency in the medium-low band. These stations are in constant touch with the planes and with each other. Each plane is equipped with a light radio transmitter and receiver, loaned by the U. S. Army Air Forces. Standard radio-telephone procedure is used for the sake of brevity.

Here's how it works:

Circling in his plane high over a fire, the observer studies all the conditions below, busily noting the information on a special report which he holds in his lap. Then picking up his microphone, he presses the button and calls:

"KHJF this is 11-10, over."

Back from the ground station comes the acknowledging call: "11-10 this is KHJF, over."

From the plane, "KHJF this is 11-10

—Fox report, six one-R-Roger, two seven two—C-Charlie, O-Oboe, A-Able, M-Mike, zero niner zero, one, two, two, eight—dropped message—all under control—over."

The radio lingo of forest patrol operations sounds like Greek to the uninitiated, but it's packed full of information, boiled down to the simplest terms to help conserve time on the air and speed up reporting. "KHJF" is the ground station; "11-10" the plane number. "Fox report" means the observer has a fire to report. The position of the fire is given by grid numbers. The rest

of the call gives information on the fire, compass heading of the plane and time of the report.

While the calls come in over his radio, the dispatcher on the ground is working swiftly setting up the fire on a huge map of his district. From a drawer he takes a long pin set on a small wooden base. On this he slips colored blocks, one-half inch square. First is a purple block, with the letter "C" on it, which means the fire is a "controlled field fire" and somebody is watching it. Then a blue one, marked with the letter "O," signifying the fire is in the open. Next a yellow block with the letter "A" on the side, meaning the fire is just starting and is only a small one. Last a green block lettered with an "M," indicating that the fire is burning with medium speed. And there's full information on the fire. Finally the dispatcher places his little block arrangement on the map at the location of the fire, and beside it puts a miniature model of a plane, bearing the numbers "11-10" This he points in an easterly direction, the last course called in from the plane when the fire report was given.

With this plotting system, which is similar to the method used in this country and in England at air raid warning filter centers, the dispatcher has a constant picture of the fire situation in his district and the approximate location of the planes.

But not all of the patrol is run from a dispatcher's office. Out in the field, Texas Forest Service cars are identified from the air by large black numerals inside a yellow disc painted on the roof.



They direct the patrol—left to right, W. E. White, director of the Texas Forest Service; Colonel E. L. Johnson, national commander, Civil Air Patrol, and Lt. Colonel D. H. Byrd, Texas CAP wing commander



When the aerial observer spots that tell-tale insignia, he can call the car by radio, or if the car doesn't have radio, and many of them don't, he zooms down to attract the driver's attention. Then it's only a matter of dropping a message.

As a demonstration of the flexibility of aerial forest patrol, a car and plane last spring worked together for seventy-five miles along highways and country roads, checking fires. A smoke ten miles away was sighted by the plane and reported to the car; then the plane circled overhead until the patrolman arrived to investigate the blaze.

As the patrol develops, more and more demands are being made on it. Towermen have found that they can call for planes to investigate a fire and de-



Heart of patrol operations is two-way radio communication. The observer, above, reports fires to the radio control station, below, while their location, type and progress are plotted on a huge map, at left



are caused by freakish winds suddenly whipping a smoldering spark over the fire line. Hard to detect from the towers, plane patrol on such fires has proved a blessing.

A system of ground to plane signals has been worked out when radio communication isn't available. When more help is needed on a fire, the patrolman does an Indian war dance. The pilot responds with a waggle of the plane's wings and sends out the call to headquarters by radio. "Porpoising" the plane up and down means "follow me." This signal was used recently in directing heavy mechanized equipment to a fire over a maze of bewildering woods roads. When the crew arrived the observer had mapped the fire and dropped  
(Turn to page 92)

termine its cause and action. This saves hours of precious time when manpower shortage is critical. Priority can be given fires which threaten the most valuable forest areas, based on plane reports.

On hazy days, when low visibility makes detection from towers impossible, planes are solving the problem. On one fire last fall, a plane flying over an isolated, densely wooded territory for the first time reported a fire which hadn't been discovered from the tower because of dense smokes blowing in from fires in an unprotected area. Later, ground men found the fire had been burning for three days. An air observer can make a quick check of a large fire and direct fire fighters to the most critical points. Several instances are on record of aerial patrols' reporting "catch outs," which





Empty and worn out fields where once stood the virgin forests. Can productive forests be restored to abandoned land?—abused forest remnants rebuilt?

THE HISTORY of the forests of Vinton County, Ohio, is a part of the history of the nation. It had its beginnings with the pioneers; they needed land more than they needed forests. They could not foresee the future value of timber and the extent of national dependence on it. Removal of the virgin timber was a pioneer necessity based on realism and written in hardship. Removal of the forest meant virgin soil, homes and food. As the clearings grew

and prosperous times came to the hills, the forests furnished lumber for wagons to roll westward, lumber for magically rising cities, railroad ties, charcoal for iron to build the engines that hauled treasures back from the mountains of the West, iron for bridges, and iron for cannon to save the union.

The history of Vinton County saw the passing of the virgin forests with the pioneer who used them. It saw the clearing and cultivation of its hilly land.



Yes—for the forest will restore itself if given a chance. If this happens on hilly land, and valley farm land is improved, natural wealth will return

# HOW TO RESTORE

By JOHN T. AUTEN

Sons of the pioneers prospered; their soil was productive; they had plenty to eat. But as the decades rolled on, the hill farms began to wear out. They grew poorer and poorer. Somehow the drought got the corn and pastures dried up. The soil slipped away almost unnoticed and one by one the fields on the steeper slopes were abandoned. Sons went to work cutting charcoal wood for the iron furnace or took a job in Cincinnati or Columbus or Chillicothe. Some drifted west. The old folks clung to the hill farm, but as the years rolled by the roof leaked, the porch pillars rotted, and finally the old folks passed on and the old home, abandoned and leaning, looked out on empty and worn-out fields where once stood the virgin forest.

The manner of using the basic land and forest resources of Vinton County has greatly reduced the total of its present possible income. Today in the hills little more than abused remnants of the once productive forest remain interspersed with patches of briar and brush-covered openings that once were farms. Farming is still the major activity in the valleys and level uplands, but farm land—even the best of it—has been seriously depleted. According to Ohio's Experiment Station Bulletin 485, twenty-six percent of the total land area once farmed has been abandoned. Tax delinquency has been as high as eighteen percent. Public revenue collected is not sufficient to meet total expenditures in the county and state aid makes up the difference.

What is the future of this county and other counties like it? Forests probably represent the most efficient use of the steep land. Lime and fertilizer on plowable land and pasture, and forest restoration on steep land could restore a large measure of prosperity. Can productive forests be restored to abandoned land and can abused forest remnants be rebuilt? Yes, they can, but no real problem is single-tracked.

Facts on the possibilities of forestry must become a part of public knowledge. The all-too-common nostalgic im-



# FOREST WEALTH

## In an Ohio Hill County, Nature Leaves a Clue That May Reverse the Process of Soil and Forest Decadence

pression that forests have gone forever with the "good old days" is not consistent with real possibility. Trees are gone, but the forests have not passed forever with the pioneer. Great and abiding forces are at work now as always. Nature's processes are slow and independent of man's life span, and reforestation cannot always create an immediate profit from resources depleted for over a hundred years, but faith and intelligence and cooperation can restore even abandoned land to productivity.

The story I am about to relate con-

cerns one abandoned land area that did grow trees again. But first, a few side issues that may distract attention as it unfolds, should be cleared up. To begin with, it is generally known that removal of trees and cultivation



Enough producing power remains in this abused hardwood forest to restore wealth. The need is for protection



These sixty-year-old pines reclaimed an abandoned field, healed erosion scars. How hardwoods are taking over

change the soil. Forests lay down a protective litter cover and under it soil becomes porous and absorbent. Rain cannot puddle and compact this soil. Surface evaporation is low. Worms and insects penetrate it with little burrows, drag down and chew up leaves year after year till the surface layer becomes mellow and absorbs rainfall like a sponge. Minerals absorbed by tree roots, stored in the leaves and dropped to the earth each year make the surface

soil rich and mellow. Undisturbed soil is truly an indispensable part of the productive forest.

But when trees are removed from steep land and the soil cultivated, the very first rain starts washing away the loose soil. The rich organic layer is especially easy to wash away. Cultivation destroys the maze of miniature worm catacombs, breaks up the network of interlacing roots which bind the soil; and when rain comes, the whole mass runs together and settles down. After each rain a roof-like crust forms that sheds a great deal of each succeeding rain. When the crust is moistened, it and the underlying surface soil are puddled by raindrops and sluiced off into the streams. Deep gullies often form and the undermined soil is torn away and carried off at an alarming rate.

Unless some kind of plant cover is kept continuously on forest land, the soil is quickly lost. Grass, weeds, briars—anything is better than bare ground. Trees are best of all. Soil unprotected from erosion soon loses its power to sustain the crop that was on it. An

eroded soil is always drier than before. It is a hotter soil, too. Try picking up an old discarded plowshare lying in the sun on a bare hillside! Is it any wonder that tender plants can't grow on such an unfriendly site?

Some plants, however, do survive on eroded land—field sorrel, smilax that tears your hands with its sharp spines, plantain and poverty grass. But do not despise these tough, rough and ready invaders. They are lifesavers to depleted soils. They stop erosion. Pines, too, regenerate if a seed source is near; they stop erosion, rebuild the soil and in addition provide a valuable crop. So, you see, there are plants that can grow in dry places and some that must have moist soil and protection from drying winds.

One summer day I stopped at a little log cabin in Vinton County on the road to Richland Furnace. An elderly man answered my rap on the door—a kindly man with graying hair and eyes that were wise and seeing. About him was

an unhurried peace of spirit as though the storm with all its devastation had tried him and passed on, leaving him in his little cabin beside the road, over which he had traveled and seen the world go on its way. Here was a man I reasoned, who could tell me many things if he would.

"Are you Mr. Carson, who owns the piece of land on the left at the top of the hill?" I inquired.

"Yes," he replied, pleasantly, "that's mine, back to the line fence where the gap is at the old road."

"We are very much interested in that pine—it's so well stocked. Did you plant it?" I asked.

"No, it came in volunteer," he said, coming out into the yard. "It seeded in from a few old pines left on the hill. I remember when it was about three feet high—I could stand anywhere in the field and touch three or four trees."

At his invitation to have a drink of water, which he claimed was the "best in the state," we walked out to the pump.

"You see, Mr. Carson," I went on, "we are interested in your woods because it is so good. If good timber like that can be grown here there's no reason why it can't be grown in other places. Would you object if I go through the stand, do some measuring and take soil samples?"

"No, help yourself," he said, passing me a tin can full of water. "You wasn't in the field to the right of the road, was you?"

"No, I didn't go there," I replied, taking a drink and handing the can back to him.

He sat down slowly on the pump platform. "Well, I remember when both that field and the one with the pines was hardwoods. My father cleared both of them when I was a boy. I harvested wheat on one piece and later cut oak ties from the same field where the wheat had been. I saw the pines come in on the other one. I had turned that field out when it started to wash bad. A few

(Turn to page 84)



**Proof of recovery.** In sixty years, soil in the pine forest—once abandoned farm land—has become loose, mellow and spongy (right), absorbing rainfall seven times as fast as the bare, compact soil (left) of an open field

# COWHIDE HERALDRY . . . By OREN ARNOLD

An Authority on the Subject Reveals  
the Lore of Branding to be as Much a  
Part of the Forest as It is the Plains

/Y	1994	Carl E Ronstadt Tucson C ls-r-h H See K	/LI	1356	W Jeff Martin Bumble Bee C ls-r
K	2554	F H Boscoe Safford C lb H ls	FL	4515	Luis Lopez Tucson C lb H lt
K	6497	Geo T Cline Roosevelt C lr H ls	LO	2183	Felix Torres Tucson C lr H lt
K	6361	W N Barkley Glendale C rh	LP	1561	John P Sanford Klondyke C lr
-K	1952	Bert J Colter Springerville H rt	LP	5217	S A D Jackson Kirkland C lr H lt
-K	1952	Thomas Phelps Springerville C rr-j	/LP	5628	Leonard L Peeler Lowell C lr H lt
N	5665	Gus Duncan Duncan C See N-K H lj-t	-LV	3800	L L Ashley & J W Sergeant, Phoenix C lr
-K	3325	Thos W Kirby Douglas C lj-r H lj-t	LW	3231	Chas DeBaud Sr Tucson C lr H lt
/K	1086	F A Stacy Clifton C lr-h H lt	LX	2755	Andrew C & Hattie W Dowdle Klondyke C lr H lt
XF	743	Chas K Penn Pomerene C lb H lt	LY	1961	Frederick C Donkman Casabel C lr H rt
KG	2601	Katie Gordon Tucson C lr H ls	LA	4578	Bessie B Morgan Hot Springs C lr H lt
KK	2326	Francis B Jones Adamana C l neck-r	-L	3862	Samuel B Gibson Payson C rh H rt
KU	2770	Sam Gibson Casabel C lr H ls	/L	1992	Mrs J McMurray Willcox C ls-h H ls-t
V	2959	J M & Roy Gednev Hillsdale C lr	M	2905	John P Cull Douglas C lr or h H lt
-V	5575	T P Garrett San Simon C l neck-h H See KV	M	3604	Mrs R E Perkins Chino Valley C lb H lt
/K	3839	H B Aguirre Tucson C rh-ir H See KY	M	3700	W H Miller Tucson C rh H rt
K4	2129	Mrs B Neale Smith McNeal C lr H lt	-M	510	Henry West Safford C lr H ls
K5	2167	William W Riggs Dos Cabezas C lr	MH	5303	R H Moorhouse Florence C ls H ls
-K	3948	Margaret Jackson Flagstaff C lr H lt	MI	4251	Kenneth Hirsch St George Utah C lr
K	2773	Delbert Peck Pima C ls-r-h H lt	MT	1304	Wt Eldon Silver Black Fox Co Inc Flagstaff H lr
-L	1932	Union Title Ins & Trust Co Phoenix C rh H re	/M	3750	A Weiler Phoenix C lr-h
L	5450	Geo W Long Phoenix C re	-M	4275	Franklin E Moore Douglas C lr H lt
L	5971	Gilbert G Heaton Moencas C rh H rt	N	3515	Annie S McKally Pet Prescott C lb H ls

Typical page from a brand registry  
—showing both brands and earmarks



The stories behind brands form a cowhide  
heraldry without counterpart in the world

ON A CRISP blue-sky day in autumn of 1874, loggers in the Tonto Basin of Arizona suddenly halted their axes and stood with uplifted heads. They had heard a woman scream. The shrill terror in her outcrying caused the men to grab rifles and start toward her on the run—for surely Apaches or other Indians had crept up close to claim one more victim. But in five minutes Mrs. Hattie Washburn came up to them, and her screaming dropped to a wail of pain. Across her leg, just above the knee, was a severe burn.

"H-he done it—my husband done it—with a branding iron," she said.

It was incredible, but true. Hodie Washburn, a rancher never too well liked, had managed to talk this young woman into marrying him only one week before. Today, in a drunken spree, he had decided to brand her, as he would one of his cattle, to "prove she belongs to me."

What happened to Hodie Washburn is a minor classic out West, and has added importance in symbolism. He was not lynched, as he might well have been, but he lived until 1909 carrying the name "Treetop" Washburn. Across his chest until his dying day was the rough design of a treetop. It was burned there with a red hot iron—his own branding iron that he had tried to use on his wife. The lumberjacks burned it there.

His is not the only "forest" brand in the realm of cattle-men, and his story is not the only one fraught with drama and sensation in the history of forest brands. This is because the undergrowths of our western woodlands have been fine forage for cows since the day white men first drove them into the region. The lore of branding is as much a part of the forest region as it is of the grassy plains.

Cattle brands, in truth, have been story-lore all the way from Texas to Oregon. In doing research for a book on brands and branding, I discovered at least forty designs of trees that had been burned on American steers. The pine tree, the oak leaf, maple leaf, dogwood, fir and stump are still burned in almost every western state and in more





Branding irons—third from the top is the famous Turkey Track

than 100 Texas counties, and the ax brand or some variation of it is almost the commonest of all. Cattle ranchers have always been closer to trees than to the soil, sentimentally and factually, and this has been reflected in the choosing of brands.

Wherever men of the saddle have roamed in western America, in fact, they have left legends of branding behind them. These men are called saddled knights, because they represent a cleaner, less selfish heraldry than did the knights of mediaeval Europe. Their scepters are usually wagon rods on the end of which some ranch blacksmith has welded a brand design—the typical stamp iron. The brands and the stories behind them thus form a cowhide heraldry without counterpart anywhere else in the world.

The Two Hearts brand, one of the prettiest ever designed, is proof that a man draws his brand from his own feelings as well as for convenience in marking his stock.

Will Rogers, most beloved cowboy and rancher in our time, used to haul wood from the forest in Oklahoma and cut it into fireplace logs for burning on long winter nights. He'd sit there before the fire each evening and see the andirons silhouetted against the blaze. When he grew up and wanted to register a brand of his own, he chose that

same pleasant memory, the Andiron.

Sebe Trainor, in Colorado, saw one winter that his family was about to starve to death, so he took down his rifle and went hunting. On the second day he saw a turkey track on light snow. He trailed a big gobbler, shot it and brought it home to save his loved ones. And when he later needed a cattle brand, he chose that important Turkey Track sign. Many variations of the Turkey Track have been used, sometimes with initials and numbers.

The Hollingsworth family, in the Mescalero country of New Mexico, was snowed in one winter, and during a severe storm the mother and father were stricken with illness. Danger here was from freezing, because the woodpile had

find stray calves, and did find one under a canopy of aspen and spruce. He roped and tied it, and was heating a running iron in a small fire when zip!—an Indian arrow nicked him. Instantly he dropped behind his tied calf for a breastworks, and for a few minutes shot at what he hoped was Indians. It soon became clear that he couldn't defend himself long. Nor did he. But, two years later, other cowboys rounded up a steer with this farewell from Jess burned on its side:

7-4-68 Indians  
Hot as hell.  
JH

It was typical of cowboy character that Jess had made laconic comment on the weather during his siege there. He himself was never seen again.

Among the famous brands of western history, the Terrazas, King Ranch, Four Sixes and XIT demand top billing always. A generation ago Don Luis Terrazas built up a mighty kingdom in northern Mexico. Nobody knows just how many acres he had, but they included not one but several forests, and had ample grazing for 400,000 cattle at one time. There were many magnificent haciendas, hundreds of smaller dwell-

**E. H. WITHERELL,**  
Postoffice Address—PRESCOTT, ARIZONA.  
Cattle and horses branded as shown in cuts—below

Ear Marks—Underbit in left and upperbit in right  
Range—Lonesome Valley and Black Hills ranges at Co., Arizona.  
Also owner of the following irons:

Left thigh. Left shoulder. Right thigh. Left side

A liberal reward will be paid for the return of any strays to my ranch. I also wish it understood that no "monkeying" with my stock will be tolerated, and any person who seeks off of my herd, to illegitimately increase his own, will have the hot soup of justice everlastingly pumped into him.

#### How early ranchers advertised —and protected—their brands

burned low. But nine-year-old Daisy Hollingsworth bundled up her brother Bobbie, two years younger, and the two went with baskets into the snow. They "grabbed" for such fuel as their little hands could—mostly pine cones. They had to roam miles, but they kept a small fire going in the home cabin until their father recovered. You can be sure he remembered them when he branded calves next spring. He started a new brand on all new calves, and it was the Pine Cone brand—owned by little Daisy and Bobbie.

It was in New Mexico, too, that Jess Hitson recorded the famous Obituary brand. It was burned only once—as all obituaries are—and it, too, originated in a forest.

Jess had dared to roam out alone to



Well known forest brands include the Ax, Cone, Pine Tree and Stump

ings, thousands of horses and caballeros to ride them.

A buyer from the United States once asked the old Don, "Could you sell me as many as 4,000 three-year-olds?"

"The Don smiled and said, "Of course, senor. What color would you prefer?" And yet few ranchers ever own 4,000 cattle at one time.

The Terrazas ranch had a brand that looked like T H S connected. It was not meant to be so; it was simply a pleasing design that the Don liked. It

number of cattle grazing there today is about 130,000 head. The King brand is a Running W—the letter W so extended that it seems to be in one gosh-awful hurry, and is thus said to run.

The Four Sixes brand also is Texan, and every range man in the West knows that true story of how a brand was made. On a certain night years ago, Burk Burnett, a poor cowboy, was playing poker with a well-to-do ranch owner. Luck smiled, and Burk raked in all the chips.

to be seen on Texas cattle, trucks, wagons, harness, oil derricks and elsewhere.

The XIT is most Texan of all, in the main cattle state. Years ago when a syndicate of Chicago bankers built the present Texas state capitol, they were paid ten counties of land. On this vast acreage they established a ranch—and chose the Ten In Texas—XIT—for their brand. It became nationally renowned.

Thus it is that little things, or big ones, can determine the design for a man's brand. He chooses initials, geo-



Cattlemen, as a rule, are sentimental about their choice of brands—and since they have always been closer to trees than to the soil, "forest" brands have been burned on thousands of American steers

went out of official existence when Don Luis died in 1923, and his vast ranch holdings have since been split up, due to Mexican politics and industry.

But in America today is a ranch which still claims bigness almost of the Terrazas kind. The King Ranch in south Texas is so large that there is a month's difference in the climate of its north and south boundaries. It has 2,000 miles of fence, costing \$400,000. It has nearly 400 water wells. All of Delaware is no larger than this ranch, which embraces about 1,500,000 acres. Average

"Tell you what I'll do," the rancher then challenged. "On the next hand, I'll bet all my ranch holdings against your pile of chips."

Burk agreed. Both men drew hands, and Burk won. He held four sixes. That was at midnight, but before next dawn he was already on his new ranch property, re-burning his cattle with the 6666 brand. He prospered mightily. Oil was discovered on his land and he became a multi-millionaire. He even gave a big endowment to Texas Christian University. His Four Sixes are still

metric designs, picture designs, or whatever means something to him as an individual. And, more likely than not, if he sticks in the cattle raising business long enough his brand becomes indelibly marked on everything associated with him—his cattle, horses, houses, jewelry, stationery, bedspreads, pies, bank checks, even his reputation. Barbecue Campbell is a famous rancher who chose the "Bar B Q" brand. Just as "Tree-top" Washburn in Arizona had to wear that name forever, because of one shameful incident.





The Chinchiqua jungle where the writer explored for the precious quinine bark—and where he had an encounter with a deadly fer-de-lance

# CINCHONA HUNTER

A Wartime Quinine Explorer Finds Adventure in the Colombian Andes

By HENRY S. KERNAN



BY NOW the world knows of the great cinchona hunt that has been in progress along the wild slopes of the Andes since 1942. And it knows the reasons for it. Quinine is obtained from the bark of the cinchona tree—and quinine is essential to the health and stamina of our fighting men in the tropical jungles of the South and Southwest Pacific. The main world source of quinine bark, the Netherlands Indies, fell to the Japs early in the war, and with this supply cut off America turned to the slopes of the Andes, original home of cinchona.

Just how many wild cinchona trees have been found in these jungles is as much of a military secret as the amount of quinine they have produced. But it will not help the Japs to reveal something of the life, work and adventures of the explorers who for the past three years have probed the fastness of the wild forests of the Andes for this life-saving bark. These cinchona hunters, for the most part foresters and botanists, lead a hard and rugged existence, and more than one has given his life in this service to his country. The writer, a cinchona hunter, narrowly escaped death in Colombia when bitten on the hand by a deadly fer-de-lance.—EDITOR.

Even in a land of contrasts such as Colombia there is perhaps not one more striking than the mighty, triangular-

shaped range whose snow-covered peaks rise up from the Spanish Main behind South America's oldest city, Santa Marta. From the top of San Lorenzo, its northwest extension, you look down upon a scene which, all exaggeration aside, is one of the grandest sights upon which man can lay his eyes. The geography and history of the world are before you.

Look to the southeast and the peaks seem to rise into the clouds. When these clouds break, you catch glimpses of those mysterious snowfields which the Indians call the land of the dead, and which few white men have ever reached. The sunlight reflecting on the crystalline rocks makes them appear larger than they are, for only a remnant—a few square miles—is left of a once vaster glacial sheet. It has retreated so recently that the vegetation is only just creeping back up the valleys, over the moraines, and onto the bare rocks.

This is the *paramo*. High, bleak, cold and windswept, it is the land of condors, mountain deer and wild horses. A very few half-tame cattle and sheep reach these heights to graze the sparse bunch-grasses among plants with such weird names as *frailejon*, *guinda*, *channa*, *zagee*, and *ajonjoli*.

Below is the forest belt, which begins in the little sheltered gullies with a few low twisted trees and ends far down with

the huge *ceibas* and *bongos* of the full tropics. It is a forest hidden in fold after fold of unbelievably steep valleys which succeed one another on and on to the east and south.

Now turn to the northwest and you will be looking down upon the lovely harbor of Santa Marta. Here, Roger de Bastidas, in 1525, founded the continent's first city, and from here Jimenez de Quesada set out to conquer New Granada. It was fought over, sacked and burned for 300 years before settling down to what it is now—a sleepy, proud,



Mama Jose Domingo of the Tucurincu Peivus, with his family

AMERICAN FORESTS

sun-baked little city which preferred to lose its airplane service rather than keep an airport, unworthy, as it thought, of its past.

So the planes now stop at Cienega to the south—just a white blotch in the distance. Beyond is the fabulous “banana zone” of the United Fruit Company, itself a symbol of international capitalism in its latest form. To the west stretches the Caribbean coast towards the sometimes visible city of Baranquilla which receives, besides a daily clipper from Miami, several hundred ocean-going ships a year.

But the Colombian Sierra Nevada is neither as isolated nor as uninhabited as it looks from San Lorenzo. Go to one of the little towns in the zone—Rio Frio, Arihueca, Sevilla, Guacamayal—and you will perhaps see among the racial hodgepodge of red, black and white, certain dark, long-haired people in baggy, homespun clothing who stare with that air of sullen indifference that is widely accepted as the typical characteristic of the American Indian. These are the Peivus. These are the shy, secretive little folk who come from the high valleys of the Sierra. Dirty, bandy-legged, undersized and wrinkled—a more unattractive looking race is hard to imagine.

But, said I to myself as I gazed back with reciprocal rudeness, either you win the confidence of these Indians, or our armies get no quinine from these mountains. It was not my first assignment as a quinine explorer for the Foreign Economic Administration, but it was by far the most difficult and important.

A traveler with only a bit more than the usual amount of



Looking southeast toward the Indian's “Land of the Dead”—the snow-capped peaks of Santa Marta, sometimes visible through the clouds



Mammas Ignacio and Patricio, stone age medicine men, worship their god, Jate Sulee, in the sunlight

desire for adventure can reach the Peivu village of San Andres. A good mule-trail, government-built, leads up from the railway town of Rio Frio. It is half a day by mule and you had better get there before the rain begins.

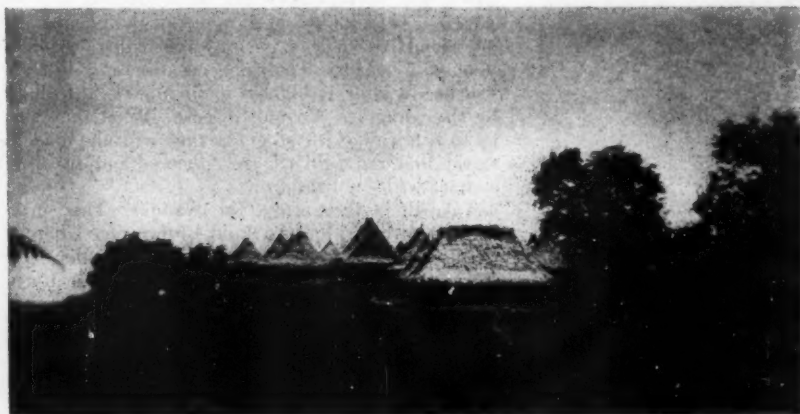
San Andres has some twenty-four round thatched huts perched on a sharp spur jutting out from a mountain. Half of them are of palm and half of mud and wattles. The larger *cansamaria* is in the middle. This is the men's club where the male population from the weaning age up sleeps, loafs, weaves and worships.

My guide and I were lucky enough to find that many Indians had come in the day before from their little cultivated patches scattered up and down the valley. I was presented to the headman, Mama (Chief) Julian, who shook my hand and invited me into the *cansamaria*.

I had to bend nearly double in accepting his invitation and then picked my way through the semi-darkness to a low oblong stool.

Gradually I made out the interior. It was perfectly round and some thirty feet across. Smoke from four smouldering fires was seeping up through the straw roof and had rendered it black with soot. It was supported by two up-rights, between which poles and the wall were slung several hammocks. In each was a sleepy Indian, chewing (coca) leaves. This habit-forming drug is used by the men. They claim that it increases their endurance, and it undoubtedly dulls the senses. They chew it whenever they have nothing else to do, which is most of the time.

Having been instructed beforehand in the matter of gifts, I began to unload.



The thatched huts of San Andres, home town of Mama Julian's Peivus, are perched on a sharp spur jutting out from a mountain

Mama Julian got a pound of coffee and I passed cigars around. They were accepted with scarcely a grunt of thanks. In return a monkey-like little man named Jose Maria, consented to weave at his loom which was standing near the doorway. I watched him, fascinated. What struck me was the mechanical sureness and skill with which he worked, apparently without thought or care. Several groups of women with their children gathered to watch me, fascinated in their turn. I held out candy to the children and one by one they mustered courage to toddle forward and clutch it, only to scurry back to the protection of their mother's skirts in the manner of small children the world over. A twelve-year-old boy was puffing delightedly on a cigar. Another boy brought me an egg. I felt that I was

getting on in Peivu society.

Suddenly Jose Maria stopped work and left; whereupon my guide suggested that we visit a certain Tiberio who

might have some eggs. He was an Arhuaco from the southern side of the Sierra. He had been to a mission school and had learned to read; and as a sign



Leaf pattern of the more common but lower grade *Cinchona pubescens*, showing the work of insects



The shade-loving *Cinchona officinalis*, one of the world's most valuable trees, will sometimes sprout in the sunlight

of his superior culture had built a rectangular house instead of following the more practical round style. He was sitting by the fire watching his wife spin cotton with a distaff. I passed around coffee, salt and candy; and asked if he had any eggs. He thought that he did and sent a child off to look. We chatted until he returned. As I was preparing to leave with many mutual protestations of friendship, Tiberio reminded me that the eggs would be five cents apiece.

I was rather taken back, but paid up cheerfully. When we reached the coffee plantation where we were to spend the night, we found that three of the five eggs were bad. I had been roundly stung, but was learning not to give gifts indiscriminately to the Indians.

As I came to know better the three tribes which live in the Sierra, the Peivus, the Arhuacos, and the Asarios, I found them, if not exactly likeable by our standards, at least curious and pathetic in their struggle to survive. Their degeneration and decrease had been variously blamed upon rum (sold to them by the whites), coca and disease. What they sum up to is a way of life so out of tune with the modern world that the Indians are squeezed out in every contact with civilization.

Take their agriculture, for example. They practice a shifting desultory kind of farming whereby hardly one percent of the tillable land is under cultivation. Each Indian has several patches scattered up and down the mountain, and wastes a good deal of time traveling between them. They are burned off during the dry season from December through March and are planted to potatoes, manihoc, bananas, corn and sugar cane. The proof of its inefficiency is that the Indians barely keep themselves alive and have almost nothing left over to sell.

(Turn to page 95)



# AMAZING WILDERNESS

By CHARLES ELLIOTT

ONE OF the joys to which I shall look forward when I arrive at that time of life in which a pipe and an easy chair are more inviting than the jagged wind-swept slope of a mountain or the thunder of some lost cataract, is a review of my amazing treks into the wilderness places of this earth. I shall fold my hands over a probably expanding belt line, prop my soft muscles across the plush of a favorite footstool and watch blue pipe-smoke curl, and remember the best trout stream I ever found while I was lost in the Bitterroot Mountains, or the grizzly that charged down the slope like an avalanche out of the face of the mountain itself.

I intend to recall some of those breathless moments when the earth and sky seemed hung in suspense, but most of all I shall remember those times when the little red gods worked miracles that almost, but never quite, carried me into



"Every hair on my neck turned on end"

the realm of the supernatural. Those are perhaps some of the most exciting minutes I have ever lived. They are rare and indelible in the life of any man who carries a gun or a rod.

I shall recall a night at Isle Royale, perched on the blue waters of Lake Superior. I was not hunting or fishing at the time, except at unauthorized intervals, but I think it will be safe to include that experience among my harrowing memories.

At ten o'clock, black scud drifted in and blanketed the heavens. Not even the faint glimmer of a star relieved the intense darkness. I moved slowly, cautiously, feeling along the trail with my feet, my hands up to push away the invisible spruce limbs that crowded into the narrow footpath through the forest.

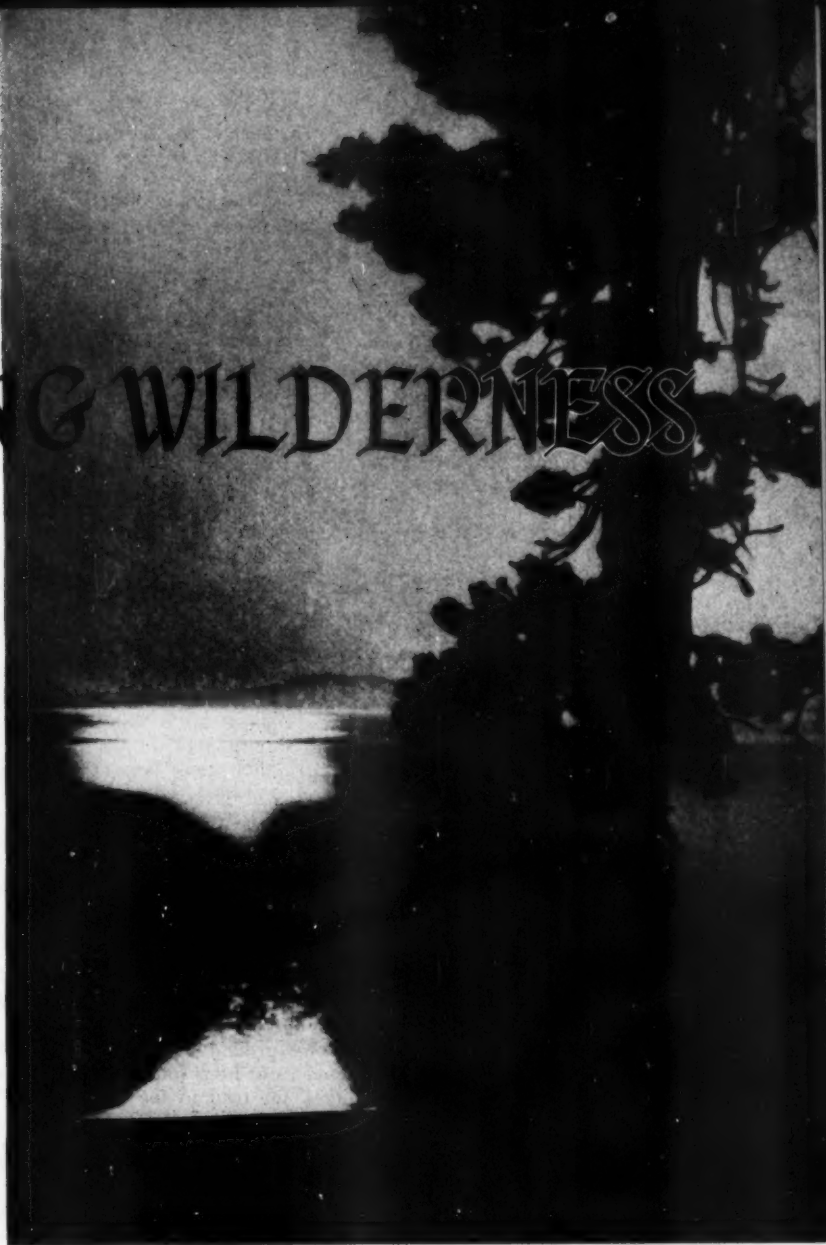
I struck a match and looked at my watch. The yellow flare went out and left me wrapped again in inky blackness that was almost terrifying.

"Let's go back," I suggested, "and get a fresh start in the morning."

"Eight hours," Noel's voice cracked through the gloom, "may mean life or death."

He was two feet away and I could not see him. I heard him turn and move up the trail. I followed the soft pad of his footsteps on moss.

Somewhere out in that wilderness two boys were lost. They had been unaccounted for when the fire crew came in at dusk. Whether they had stopped en route to the landing, or whether they had failed to report at the assembly line on the tail end of the fire, we did not



know. Out in a roadless, uninhabited land they might now be lying face downward at the foot of a cliff.

The battle of the Isle Royale forest fire was won. For three months, exhausted crews had slugged it out with blazing fir and birch. On hundreds of acres, the humus had been burned away from naked rock. Tamarack swamps that had been green and rich with life, were desolate nightmares in cinders. Thirty-five thousand acres, almost one-fourth of the island, had gone up in smoke.

Now the fire was under control. Crews were "mopping up" by extinguishing the smokes in stump holes and smouldering snags.

Soon after the discovery that two city-bred firemen had failed to come in with their crew, Noel Wysong and I left the landing at Rock Harbor, with only a flashlight. Miles away from where our boat was anchored in the rocky cove, the bulb of the flashlight had winked out. We went on in darkness, stopping now and then to "hallo" at the tops of our lungs. Each time the same answers had come back—the hoot of an owl, the staccato bark of a coyote, or a moose crashing away into the brush.

One hour past midnight we crossed a rocky promontory that jutted out into Lake Richie. The trail twisted off the ridge, down through a dense spruce forest to the lake shore, 200 yards away.

"One more call," Noel said, "and I'll give up for the night."

"What's the matter?" The voice came out of the air, so close that I stumbled backward and fell over a log.

"Who are you?" Noel asked in unsteady tones.

"There are two of us," the voice came quaveringly back. "We got lost from the others."

"You sound close enough to touch," Noel said. "Where are you?"

"We don't know," the ghostly voice replied, "but we're on the shore of a lake."

"It must be this lake," I muttered to Noel. "Voices carry long distances across water, and the water at this point can't be over half a mile wide."

"Face the lake," Noel instructed, "then come around the shore to your left. We'll meet you."

"OK," the voice answered.

Noel turned up the trail and I followed, relief swelling inside me.

"How'd you fellows happen to get lost?" I asked, in normal tones.

There was no answer to my query. Noel stopped so suddenly that I bumped into him.

"Hello, there!" he called.

Silence filled up the space where his words had been. I could hear him breathing hard in the darkness.

"Something wrong here," he said.

He blasted the silence at the top of his lungs. Somewhere out in the distance a coyote answered.

We turned and walked back thirty yards to the spot where we had first heard the voice. Noel yelled again.

"What's the matter?" asked the voice at my elbow.

"Didn't you hear us call a few seconds ago?" Noel answered the question with another question.

"No," the voice said.

"If you're on the lake shore," Noel's words were slow and succinct, "stop and look this way." To me he said, "Strike a match."

I scratched at a sulphurous tip and it flared into flame, burning my finger.

"Can you see that?" I asked, out into the darkness.

"See what?" was the reply.

Noel exhaled sharply.

"Stay on the lake," he said to the ghostly voice, "and keep coming."

We broke twigs from a tree, started a fire and spread a ragged copy of the Isle Royale map on the ground.

"If they were around this point," Noel indicated the promontory behind us, "they would have heard us before now. If they were across the lake, they could see the light."

He put his finger on a body of water designated as Intermediate Lake, that lay beyond a ridge, almost two miles away.

"I don't know what the answer is," he said, "but they can't be anywhere else but there."

We ground the red coals of the fire under our heels into the damp earth and took the trail to the head of the lake. There we deserted the footpath, forced our way through a narrow swamp and climbed the ridge. At the top of the ridge, Noel swung west, toward the head of the lake. I stumbled downhill through the darkness, in the opposite direction.

Noel's hunch was right. We caught the lost fire fighters at dawn. They had completely lost their heads, had deserted the lake shore and were plunging into a wasteland of swamps and rocky ridges, out of which they never would have returned alive.

The next afternoon, Noel Wysong and I walked to the head of Lake Richie to puzzle out that weird adventure. This is what we found: A narrow swamp, not shown on the map, cut through the ridge and connected Richie and Intermediate lakes. Exactly opposite the mouth of the swamp on Lake Richie, we could talk with the lost fire fighters as though they were in the same room. When we moved a hundred feet away from the mouth of the swamp, we were in another world. Our own voices crossed Lake Richie, followed the corridor swamp,

crossed Intermediate Lake and came back as an echo to the boys lost there, from the opposite shore of Intermediate Lake. Instead of walking toward where we stood, they were actually going in the opposite direction. Only Noel's quick thinking saved them from possible death in that mixed-up land of swamps and cliffs and lost forests.

Usually mysteries of the woods have some explanation. If we had not returned to puzzle out that one, I would have forever and eternally credited it to the little red gods, for lack of a more lucid explanation.

Two years ago I was on a fishing trip in the southern Blue Ridge mountains. All day I had followed a trout stream through terrain as rugged and as picturesque as any in eastern North America. Nightfall found me in a jumble of rocks, rhododendron and virgin hemlock trees that brushed against the stars. I collected firewood and made camp where a tiny creek splashed down an angling hollow.

I cooked and polished the bones of two trout I had taken during the afternoon, then washed out my coffee mug and hung it on a limb beside the sooted pot. I was sitting cross-legged in front of the fire, soaking up its mellow warmth when suddenly, without any unaccountable reason, every hair on the back of my neck turned on end and a chill went down my spine like an icicle driven into my backbone. By sheer will power, I stifled an impulse to climb the nearest massive hemlock like a squirrel. I "froze" beside the fire, trying to look beyond the circle of light, out into the darkness.

Within two minutes the feeling passed, but it left me perplexed and a little afraid. That night I slept with both ears cocked like a spaniel. What action I would have taken upon the discovery of an intruder, I do not know, since the only available weapon was a flyrod.

The next morning during breakfast I thought rather foolishly over the incident of the evening before, but I knew there must be some reason. Before I broke camp, I examined every foot of ground within thirty yards of my campsite. In the soft earth, across the little creek I found my answer. It was the largest wildcat track I have ever seen. The cat had stopped there to glare at me, an intruder in his wilderness. My sixth sense, the one my ancestor brought down from caveman days, had reacted to that glare of hatred out in the darkness. That ancestor, in ages past, would have leapt for the safety of the trees. My pavement-trained muscles kept me cross-legged before the fire while the feeling passed.

I wonder what I would think now about that experience if I had not taken





"The landing that led into my camp lay between two monarch cypress trees. . ."

the time to stop and look around the next morning before I broke camp and resumed my fishing.

There is an explanation for almost everything weird and mysterious in the woods. The huntsman in the stone ax days did not stop to figure them out. He avoided the deep forests as a place where all the evil spirits of the world lived. Even until a few centuries ago, man lived on the edge of the forests and seldom ventured into their depths. The dangers that the deep woods held for him were not so much from animals as wolves and bears, but from the spirit creatures he could not see.

I had one experience that almost proved to me that primitive man was correct in his belief of ghouls and goblins that inhabited the lost spaces of the earth.

I was camped on Minnie Lake, in the Okefenokee Swamp. This lake lies in the heart of this drowned wilderness of southern Georgia and northern Florida. During the daylight hours, when no breath of air stirs, the lake is an artist's study in reflections, solitude and beauty. At night the swamp awakens. A barred owl caterwauls in the distance,

and close by, the darkness is filled with sounds made by wilderness creatures.

The landing that led into my camp lay between two monarch cypress trees, amid a maze of cypress knees. I've forgotten why I left my campfire and walked down to the landing that night, but the sight I saw shall always be with me.

Across the lake, in the limpid darkness, a ghost-like form, wrapped in a white sheet, rose from where it had been standing in the edge of the water and drifted silently back into the trees. If my hackles ever stood on edge, they did that night. I thought of a thousand stories I had heard about the lost souls of the Okefenokee—of old Billie Bowlegs, the Seminole, of Obediah Barbour, the mighty hunter. I had never believed in ghosts until now. But I had seen one—and no human on the face of the earth could have talked me out of that fact.

I did not sleep much, and all next day I could see that fantastic shape floating away into the darkness. It was a real thing, and in a way, a fascinating experience. My skin still tingles when I think of it.

One week later, on the edge of civil-

ization, a swamper explained the mystery to me.

"That was a swamp light," he said. "Some calls it a will-o-th'-wisp. It shore gives a fella a queer feelin' to th' pit of his stummick when one of them things flushes from under his feet an' glides away."

What that swamper said I had seen was a mass of nebulous light. My imagination supplied the figure standing in the water and the sheet flapping at its feet as it moved away.

To me those mysteries are a part of the woods. In the wilderness the unexpected is the rule, whether you find it in the Adirondacks, the Mojave, or a river swamp in the deep South. And if you stay in the woods long enough, you'll have some of those experiences that'll make your backbone turn to water, your red corpuscles jell, or stifle a sound in your throat. If you do, try to find the simple reason behind it all. The explanation will probably amaze you more than the actual plasma-curdling event.

They'll all make memories to help you pass the days of your reclining years, if you live through them.

# BEAVER CRISIS IN THE NORTHEAST

By CLAY PERRY

THE BEAVER has made a swift comeback in the so-called effete East — in some cases with a vengeance. It has created serious problems in several states and conservation departments, and to a lesser but rapidly growing extent the general public is somewhat alarmed. Outstanding examples of this are to be found in the "Capitol District" sur-

rounding Albany, New York.

This district is comparatively thickly settled, but it embraces sizeable areas of wooded, mountainous, well-watered country including several state forests and sanctuaries. It extends into three of the four western counties of Massachusetts, takes in the entire Berkshire Hills country, and touches on a corner of Vermont. In New York State it includes the Adirondack Mountain foothills and the Catskills' northern range along the Hudson River. In this region and farther west and north, beavers in the past forty years have taken over to an extent that, with limited trapping

permitted in New York, about half a million dollars has been realized in furs.

According to historical accounts, the beaver population in the Empire State once numbered in the millions. But in 1800 probably not over 5,000 were left, and by 1900 there were no more than fifteen. To prevent complete extermination, it was necessary to import a number of animals from Canada and to protect them severely by law. Similar conditions existed in the adjoining New England country but there, in Massachusetts and Connecticut at any rate, beavers had vanished entirely.

For a picture of what happens when



What happens when beaver get out of hand. Above, a wrecked spruce stand in New York's Taconic State Forest. At left, a beautiful beaver pond in Massachusetts — but the animals spoiled other areas and completely ruined a good trout fishing stream



beavers are "planted" and protected from trappers and hunters, the situation in Berkshire County, Massachusetts, is about the finest example to be found in the East. In 1930, a cattle dealer, with an idea of getting unusual publicity for his home town of West Stockbridge, conspired with a local newspaper correspondent to import four beavers. Three of these — one failed to survive the trip from Wisconsin — were planted in a water system that embraces a sizeable brook flowing through the only wa-

ter gap between Massachusetts and New York, and several small lakes and ponds, to form the first introduced colony in Massachusetts. The importation was kept secret until an appropriate time to "spring" it, when the "mysterious appearance" of beaver in State Line Brook was announced in the newspapers with sensational effect. It was assumed by the public that they had come in there by themselves, probably from up in the Adirondacks, a long, long journey indeed for these lubberly amphibians. The fanfare and the exhibition of dams and lodges to curious visitors resulted in a law being passed by the state legislature forbidding trapping or shooting of beavers in Massachusetts—a law that is still in force.

In 1932, another trio of beavers was shipped into Berkshire County, this time openly by the American Museum of Natural History. These were planted in the Pleasant Valley Bird and Wildflower Sanctuary at Lenox, on Yokun Brook, a tributary of the Housatonic River, in the hope that they would develop a pond large enough to attract migratory waterfowl, provide a trout pond and otherwise enhance the surroundings.

The sanctuary warden, the late S. Morris Pell, made a daily study of the animals and their work. One male he named Paul Bunyan, his mate Paula Bunyan, and the second male, The Big Swede, after the famous mythical giant lumbermen of logging camp lore. But Paul was a woodchopper without hands. Both front paws had been lost in traps or were gnawed off by Paul himself. Yet despite this handicap, Paul worked as hard as Paula and both fought off the advances of The Big Swede, a forty-pound beaver, until he went into sulks and dug his way out of the enclosure and, single-handed, began to construct dams a mile or so down the brook.

Whether or not The Big Swede schemed to decoy Paula to a new home and abandon her crippled mate is debatable, but a year later he returned to the sanctuary and attacked Paul so fiercely that he was mortally wounded. After the tragedy, Paula mated with The Big Swede and pups were born.

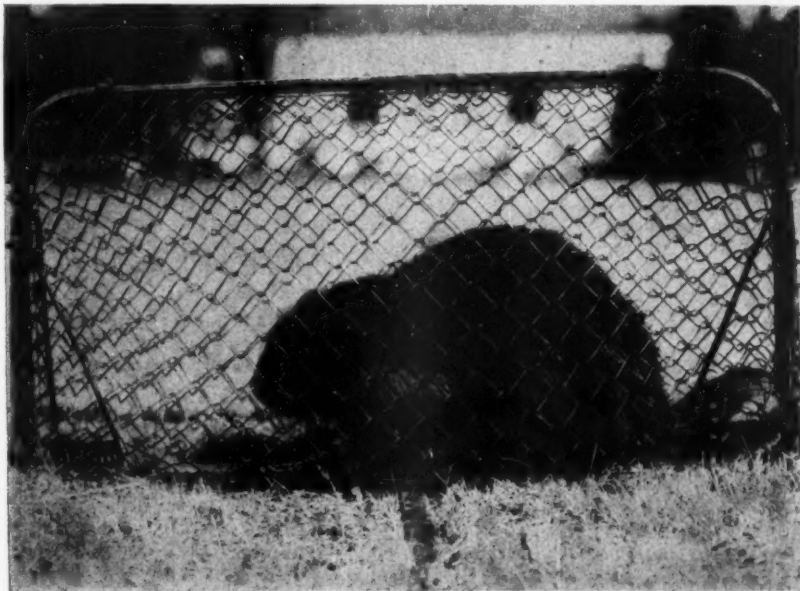
That was ten years ago. Today, there are in Berkshire County an estimated thirty-five to forty colonies of beavers—several hundred of the animals—and they are spreading to adjoining territory. Thus trouble looms, if it is not already here. Farmers find that brooks on their properties are suddenly flooded into ponds, that the temperature of the water in which they used to cool their milk is raised so high it is useless for this purpose. Meadows are inundated, apple trees are chewed down to no good purpose, save one which The Big Swede colony used as a ridgepole for a huge

lodge, dotting the mud-packed top with old bricks from an abandoned yard. In one case, a Hancock farmer found a beaver digging up his potatoes.

Railroad tracks have been threatened with flooding, one dangerous situation

supply of the City of Pittsfield, with a population of 50,000, was cut off by a single pair of big, black beavers.

In the city limits of Pittsfield there are now nine or ten known colonies. During the past two years one conserva-



Beavers may be "friends of the forest," says the author, but in the Northeast they are not friends of the farmer, the lumberman, or the highway engineer. The problem is to keep them where they belong and in balance—which involves, among other things, transplanting and controlled trapping



arising and still existent in the mountaintop town of Washington, where a spring-hole swamp furnished the beavers with a fine hydro-engineering project. State highways also have been flooded, town roads destroyed and culverts blocked. Even a part of the water

tion officer has spent a third of his time trying to control the beavers in his district; he has shot as many as eighteen in one colony.

"Yes, we want to exterminate the beavers," declared Conservation Officer (Turn to page 94)



# TIMBER CROPPING IN OREGON

By N. S. ROGERS and W. F. McCULLOCH

TIMBER cropping is on its way in Oregon.

Early in the spring of 1900, a settler in northwest Oregon proudly surveyed a patch of newly cleared hill land. It represented months of hard physical labor, clearing and grubbing the stumps to prepare for "a first crop of potatoes." An agricultural crop at last.

Around the homestead clearing rose a solid wall of trees like a great stockade. No one considered the trees as a crop—timber was a nuisance, encumbering potential farm land.

But the homesteader soon found that

forest land didn't produce farm crops after all. Finally he gave up, moved his family to a valley farm where the land was truly agricultural. The old homestead reverted to forest. Today a beautiful stand of forty-year old Douglasfir piling has replaced the potatoes. The history of this piece of timberland well illustrates the fallacy of early-day ideas of land use in Oregon.

For more than 200 years American homes were carved out of the forests as pioneers moved west. The lure of free land brought settlers to the Pacific Coast from older, more densely popu-

lated states, and in Oregon, as in the Central States, forest lands were homesteaded. But the soil of the Douglasfir region is not the soil of the Mississippi basin. In the often futile attempts to turn forests into farms, forest crops that required 200 years to mature were destroyed to produce a meager crop of potatoes, hay, or grain. The suggestion that timber was a crop would have been ridiculed then.

This mistaken idea of the early settlers has carried down to present times, but the land itself is forcing a change in public opinion. For example, 240



Clear cut twenty years ago, this area reseeded from staggered settings left by the logger





Three stages of recovery—fern opening in foreground, abandoned farmland in the background and, at left, an old clearing completely dominated by Douglasfir

pieces of piling worth some \$1200 were recently harvested from one acre of an abandoned homestead in northwest Oregon. Thus the forest is physically claiming its own ground, and proving the economic soundness of timber cropping on that ground. The public is finally becoming aware of the necessity of continuous crop production on forest lands. As a result, in the forested counties of Oregon, land use committees now zone farm, grazing and forest land so that the most effective use may be made of each. While the committees have no regulatory powers, they do exert a considerable advisory influence, and in the long run should aid timber cropping on lands best suited to that purpose.

Some men still lack faith in timber cropping. The question which best expresses that lack of faith is: Who wants to wait 100 years, or even fifty, to harvest a crop? The answer is that proper management of forest lands will make provision for continuous production, and there will be no need to wait half a century between crops. Once a rotation has been set, a given percentage can



Typical of growth on abandoned homestead sites in northwest Oregon is this stand of piling-size young Douglasfir

be cut each year or periodically, to take advantage of favorable markets.

The acceptance of timber cropping as a sound industrial forest policy is being speeded up by the greatly increased cutting in old-growth forests during the war years. This has forced attention upon the younger stands which must form the bulk of future cutting. Some companies are already logging again on lands which were once clear cut—which emphasizes the fact that timber is indeed a crop. Too long the forest was put in the same category as minerals—"mined" with no thought, or at least no conscious effort, toward growing another crop. To perpetuate this renewable resource, the forest industry sponsored the Oregon Forest Conservation Act, the first effective state forest regulation law in the nation. Its passage was backed by public bodies and public-spirited citizens. This law makes timber cropping mandatory on all private forest lands.

The changing public opinion of forest land use gives basis for a new attitude toward, and a new belief in, permanent forest production. Removal of this one obstacle to timber cropping, however, still leaves other obstacles to be considered. One of the worst is fire.

Timber cropping has suffered from the active misuse of fire in forested areas and from a passive tolerance of forest fires. The early settlers long used fire to "improve" their grazing lands. So common was the careless use of fire in the forested areas of Oregon that it became almost a way of life with the pioneers. If a stockman decided that a good fire would help the range, he set it off at a strategic time and place. The fact that he was wholly unable to control it was a matter of no concern—fires generally died out after they had burned some distance into green timber. If a hunter found young trees encroaching on his favorite hunting country, he saw to it that the trees were burned. Ownership of the land affected the case not at all.

The present-day legatee of the early incendiary is the "fern burner." A tremendous quantity of highly inflammable bracken fern accumulates every year on cut and burned lands in the Coast and Cascade mountains. Green bracken is often a helpful nurse crop for coniferous seedlings. However, when dry, it burns with such heat that all small seedlings and even trees up to twenty feet high may be consumed. Annual fern burning has become almost a profession, with disastrous results to young seedlings hidden beneath the bracken. In a very dry season, February 1943, some 25,000 acres of fern were burned, all containing potential timber crops, and all denuded as a result of the fires. Trying to reduce this hazard, the Keep Oregon Green Association waged an active and

highly successful "Don't Burn The Fern" campaign in 1944. All the forest agencies in the state recognize this menace to timber cropping and have expended a great deal of effort on restricting fern fires and other types of fire misuse.

Years ago forest fires were thought to be harmless so long as they burned in the supposedly inexhaustible forest. It was only when fires swept farms and homes that they were considered a menace. Oregon's first fire law was passed in 1864, but its purpose was to save buildings and farms, not forests. Today the Oregon forest fire code is one of the most comprehensive and effective on the statute books. Essential protection measures have received the sympathetic support of the industry and the public. The effectiveness of this support is shown in the fact that in recent years only .15 percent of the state-protected area has been burned annually. Timber cropping is economically feasible where the yearly loss does not exceed .25 percent of the protected area.

The achievement of adequate forest protection within reasonable economic limits is perhaps the greatest contribution yet made to timber cropping in Oregon. For without substantial protection from fire, all other timber cropping measures are futile.

Timber cropping, however, is not wholly a matter of fire protection, although the management of a forest will be only as successful as its protection. Provision of a seed source and protection of the seed supply and seedlings are inseparable elements in any long-time forestry program. The best protection in the world will not grow a new forest if the area is left after logging without seed or residual stand. It is true that many areas cut over in the past in complete disregard of any forest practice measures have reseeded promptly and effectively, and without cost. But forest conditions have changed. Formerly there were large blocks of uncut timber adjacent to almost all operations and this marginal timber provided excellent seed sources for the cutover land. Today most logging is bounded on at least one side by older logging, and many operations are partially or completely surrounded by cutover lands which can provide little or no seed for the newly cut areas.

Mature timber seed source is decreasing in the ratio that cutover land is increasing, and free natural reproduction is by that ratio less and less likely to happen. Therefore, more and more effort is required to reproduce forests today—and it will cost more money than in the past.

However, the silvicultural charges essential to sound timber cropping need

not be prohibitive in Oregon. Regeneration of cutover lands should not be considered only in terms of planting costs, for if silvicultural and protection measures are adequate, there need be little or no planting. As the forest is cut, it can be regenerated at relatively little expense. Many old-growth trees are defective and will not return the cost of logging and hauling, but will produce good seed. If smaller trees are left uncut, they will increase the seed supply at low cost because it costs more to handle a number of small logs than it does to handle one big log containing the same scale. When extra care is taken to avoid knocking down or injuring small trees, less slash is created, and the fire hazard is decreased. On a long-time operation, the early maturity of these uninjured trees will often provide a source of interim revenue sufficient to carry the whole operation until the major crop is ready for harvest. Light partial cuttings open up a forest and encourage the growth of seedlings which could not grow under the full shade of the unbroken forest. Such cuttings also help to convert the whole forest from a stagnant to a growing condition by allowing young suppressed trees to increase their rate of growth.

These examples show that minimum silvicultural measures can be undertaken without unreasonable cost. Much of the cutover Douglasfir land in western Oregon has completely restocked without expense to the operator. The reason for the extensive barren cutover areas today is not a lack of silviculture but a lack of protection. As Stewart Holbrook points out in "Burning An Empire," the public has tolerated the so-called "brush fire" on cutover lands until very recently. Without these recurring fires, much of the old Douglasfir cutting would now be restocked and continuous timber cropping would be assured at low cost. With the advent of increased fire consciousness and better protection, minimum, low cost silvicultural measures will be sufficient to keep forest lands productive in Oregon.

Adequate protection and assured seed supply are essential to timber cropping, but the enterprise still cannot succeed unless it is economically sound. The costs of protection and administration can be calculated with some certainty. The unknown and often critical cost is taxation. One of the greatest obstacles in the way of timber cropping is the *ad valorem* system of taxing. The system is not objectionable in itself, but in application it has resulted in confiscation of forest properties. It is customary to assess the value of timber on a given acreage year after year until it is cut. Compare this with city property, assessed on (Turn to page 88)



"For twenty-one days the division beat its slow way forward. . . ."

## THE GREEN MONUMENT OF HURTGEN

By SERGEANT MACK MORRISS  
*YANK Staff Correspondent*

HURTGEN FOREST, Germany—the firs are thick and there are fifty square miles of them standing dismal and dripping at the approaches to the Cologne plain. The bodies of the firs begin close to the ground so that each fir interlocks its body with another.

At the height of a man standing, there is a solid mass of dark, impenetrable green. But at the height of a man crawling, there is room, and it is like a green cave, low-roofed and forbidding. And through this cave moved the infantry, to emerge cold and exhausted where the forest of Hurtgen came to a sudden end before Grosshau.

The infantry, free from the claustrophobia of the forest, went on, but behind them they left their dead, and the forest will stink with deadness long after the last body is removed. The forest will bear the scars of our advance long after our own scars have healed, and the in-

For permission to reprint this moving account of our bloody but successful assault of the Hurtgen Forest in Germany, AMERICAN FORESTS is indebted to Major Jack Weeks, executive officer of YANK, the Army Weekly, in which it appeared under the title "War in the Forest," in the issue of January 15th.—Editor.

fantry has scars that will never heal, perhaps.

For Hurtgen was agony, and there was no glory in it except the glory of courageous men. . . .

For twenty-one days the division beat its slow way forward, and there were two mornings out of those twenty-one when the order was to reform and consolidate. Every other morning saw a jump-off advance, and the moment it stopped the infantry dug in and buttoned up because the artillery and mortars searched for men without cover and maimed them.

There was counterattack, too, but in

time the infantry welcomed it because then and only then the German came out of his hole and was a visible target, and the maddened infantry killed with grim satisfaction.

Tanks did the best they could when they could. In the beginning they shot up defended bunkers and duelled with hidden machine-guns in the narrow firebreaks, and they waddled down into the open spaces so that the infantry could walk in their tracks and feel the comfort of safety from mines. At the clearing before Grosshau they lunged forward, and some of them still dragged the foliage of the forest on their hulls when they were knocked out. . . .

The Germans had four lines of defense in the forest, and one by one those lines were beaten down and the advance continued. This was for the Fourth Division alone. There were other divisions

(Turn to page 91)





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At the end of the year, 332 individuals, 112 industrial companies, and 32 conservation and trade associations had contributed to the Forest Resource Appraisal of The American Forestry Association. The contributions of these 476 donors, listed below, now total approximately ninety percent of the amount needed to complete the Appraisal on the basis originally planned.

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 Cocke, Mrs. John, Carmel, Calif.  
 Cole, Mrs. J. R., Columbus, Ohio  
 Cone, Mrs. Moses H., Baltimore, Md.  
 Conger, E. F., Staunton, Va.  
 Conklin, Charles R., Ticonderoga, N. Y.  
 Conrad, Miss Dorothea K., Erie, Pa.  
 Cooley, Charles P., Hartford, Conn.  
 Coolidge, Miss Mary Rosamond, Watertown, Mass.  
 Copeland, Lammot Du Pont, Wilmington, Del.  
 Corbin, Clement K., Summit, N. J.  
 Cox, Miss Esther L., Baltimore, Md.  
 Cox, Jr., Philip H., Bloomfield, N. J.  
 Craik, E. W., Louisville, Ky.  
 Creighton, Mrs. T. S., Biltmore, N. C.  
 Cromelin, Miss Iilian, Washington, D. C.  
 Cronk, C. P., Wellesley, Mass.  
 Crosby, Mrs. S. V. R., Boston, Mass.  
 Davis, Miss Alma, Whitehouse Station, N. J.  
 de Fremery, Miss E. Louise, Oakland, Calif.  
 de la Motte, Brother Luke, Clarks Summit, Pa.  
 Dieckmann, Miss Louisa, Cincinnati, Ohio  
 Dixon, Mrs. Dorothy, Washington, D. C.  
 Dixon, Mrs. L. B., Del Mar, Calif.  
 Douglas, L. H., Portland, Ore.  
 DuChateau, Joseph C., Heafford Junction, Wisc.  
 Dustin, Miss Florence S., Cambridge, Mass.  
 Dykes, Andrew H., New York, N. Y.

Earle, Miss Mabel L., Lynn, Mass.  
 Eaton, Jr., Glenn W., Grand Haven, Mich.  
 Edin, Ralph J., Isabella, Minn.  
 Edison, Theodore M., West Orange, N. J.  
 Erwin, A. C., Crossett, Ark.  
 Erwin, Mrs. H. P., Washington, D. C.  
 Fahey, O. R., The Birches, Me.  
 Farris, W. A., Beverly Hills, Calif.  
 Farrand, Mrs. Beatrix, Bar Harbor, Me.  
 Faulkner, Herbert K., Keene, N. H.  
 Fay, Miss Mamie Axline, Pratt, Kansas  
 Fernald, Josiah E., Concord, N. H.  
 Ferris, Mrs. Walton C., Lincoln, Neb.  
 Field, E. B., East Hartford, Conn.  
 Field, Marshall, Chicago, Ill.  
 Field, Stanley, Chicago, Ill.  
 Fish, E. R., Windsor, Conn.  
 Fletcher, E. B., Mifflintown, Pa.  
 Forbes, Dr. Alexander, Milton, Mass.  
 Forbes, Mrs. Waldo E., Milton, Mass.  
 Fosburg, T/Sgt. M. A., Lemoore, Calif.  
 Francis, Mr. and Mrs. T. M., Birmingham, Ala.  
 Frick, Miss Helen C., Pittsburgh, Pa.  
 Frothingham, Miss Elizabeth W., Tarrytown, N. Y.  
 Frothingham, Mrs. Louis A., Boston, Mass.  
 Gaillard, Mrs. D. P., Washington, D. C.  
 Garritt, H. P., New Philadelphia, Ohio  
 Gavit, John Palmer, Winter Park, Fla.  
 Gerdaud, Mrs. Otto, New York, N. Y.  
 Giesy, J. U., Salt Lake City, Utah  
 Gildemeister, Miss Theda, Hillsboro, Ill.  
 Godwin, Earl, Washington, D. C.  
 Goethe, Mrs. C. M., Sacramento, Calif.  
 Goodwin, James L., Hartford, Conn.  
 Gottheil, Mrs. Paul, New York, N. Y.  
 Grant, Miss Charlotte L., Indianapolis, Ind.  
 Graves, Miss Henrietta L., Cedar Grove, Me.  
 Graves, Robert E., Chicago, Ill.  
 Greeley, William B., Seattle, Wash.  
 Grubb, D. Hanson, San Francisco, Calif.  
 Guggenheim, Jr., William, Long Island, N. Y.  
 Guntermann, William F., Harlem, Mont.  
 Hadley, Mrs. Morris, New York, N. Y.  
 Hall, Miss Minna B., Brookline, Mass.  
 Halstead, Mrs. J. Morton, Halesite, N. Y.  
 Hardley, Dr. Carl, Beltsville, Md.  
 Haskell, Olcott, San Francisco, Calif.



# INDIVIDUALS: (Cont'd)

Hatheway, Mrs. Conrad P., South Lincoln, Mass.  
 Hauck, Cornelius J., Cincinnati, Ohio  
 Hearn, George M., Shreveport, La.  
 Hennessey, J. P., McCloud, Calif.  
 Hennies, Mrs. Walter B., Inglewood, Calif.  
 Hepburn, S. B., Palo Alto, Calif.  
 Herbst, Theodore W., Bernardsville, N. J.  
 Herrick, Paul F., Princeton, N. J.  
 Hesse, E. E., Chicago, Ill.  
 Heurich, Christian, Washington, D. C.  
 Hickox, Mrs. Charles V., New York, N. Y.  
 Holst, Mrs. Monterey L., East Greenwich, R. I.  
 Holzer, Dr. Charles E., Gallipolis, Ohio  
 Hornaday, Fred E., Washington, D. C.  
 Horton, Edward Everett, Encino, Calif.  
 Houghton, Clement S., Boston, Mass.  
 Hover, Charles L., Longmont, Colo.  
 Hunt, Misses Leslie and Nolye, Arlington, Va.  
 Hunter, Robertson G., Des Moines, Iowa  
 Huntington, George H., Warm Springs, Ga.  
 Hussey, Miss Helen, Utica, N. Y.  
 Hyde, Deaconess Harriet C., Middle Haddam, Conn.  
 English, Mrs. Susan W., Berkeley, Calif.  
 Ingraham, Miss Evelyn, San Francisco, Calif.  
 Isenberg, Mrs. Dora R., Lihue, Kauai, T. H.  
 Jawurek, Carl, Los Angeles, Calif.  
 Jewett, George Frederick, Spokane, Wash.  
 Jones, Sherman T., Carlisle, Pa.  
 Karcher, Mrs. E. W., Kearsarge, N. H.  
 Kauffman, Erle, Chevy Chase, Md.  
 Kellogg, Frederick S., Utica, N. Y.  
 Kellogg, John F., Winnfield, La.  
 Kientz, Philip, Columbus, Ohio  
 Kroenke, A. E., San Francisco, Calif.  
 Lafrentz, F. W., New York, N. Y.  
 Lagerloef, Colonel Hans, New York, N. Y.  
 Langdon, Miss Ida, Elmira, N. Y.  
 Layman, Dr. Mary H., San Francisco, Calif.  
 Lee, Mrs. George B., New London, Conn.  
 Liebman, Julius, New York, N. Y.  
 Lilly, Mrs. Eli, Indianapolis, Ind.  
 Limburg, Mrs. Alan, Windsor, Mass.  
 Livermore, Jr., Lt. Norman B., San Diego, Calif.  
 Long, Miss Elizabeth H. D., Lake Forest, Ill.  
 Lowry, Miss Bessie C., Minneapolis, Minn.  
 Luquer, Lea S., Brookline, Mass.  
 McCallam, Miss Eleanor, Pittsburgh, Pa.  
 McDuffie, Duncan, Berkeley, Calif.  
 McGaw, Mrs. G. H., Woodsville, N. H.  
 McKinney, Miss Ethelyn, Greenwich, Conn.  
 McNear, Mrs. George P., Petaluma, Calif.  
 Macey, Miss Elizabeth Love, Indianapolis, Ind.  
 Mager, F. R., Milford, Conn.  
 Malcolm, Herbert L., Pompano, Fla.  
 Marion, Jr., Edwin L., Little Falls, N. Y.  
 Markham, Leonard B., Durham, Conn.  
 Martin, Charles H., Portland, Ore.  
 Martin, 2nd Lt. David Cutter, New York, N. Y.  
 Mason, William Clarke, Philadelphia, Pa.  
 Mather, William G., Cleveland, Ohio  
 Matthies, Miss Katharine, Seymour, Conn.  
 Mauran, Mrs. J. L., Dublin, N. H.  
 Mead, Lawrence J., Darien, Conn.  
 Merck, George W., West Orange, N. J.

Merle-Smith, Mrs. K. F., Oyster Bay, N. Y.  
 Meyer, Frederick A., Meyers, Calif.  
 Miller, A. O., Youngstown, Ohio  
 Morden, Mrs. C. W., Portland, Ore.  
 Morris, Elliston P., Feasterville, Pa.  
 Mosman, P. A., New York, N. Y.  
 Moyer, Mrs. P. S., Lake Forest, Ill.  
 Murray, L. T., Tacoma, Wash.  
 Myers, C. N., Hanover, Pa.  
 Neal, W. T., Brewton, Ala.  
 Newberry, Mrs. Wolcott E., Milwaukee, Wisc.  
 Norman, F. E., San Francisco, Calif.  
 Norris, Dr. George W., Dimock, Pa.  
 Nunn, Mrs. Richard, Portland, Ore.  
 Ohlweiler, C. H., Southbridge, Mass.  
 Owens, Harold V., Utica, N. Y.  
 Pabst, Mrs. Frederick Oconomowoc, Wisc.  
 Pack Trust, Charles Lathrop, New York, N. Y.  
 Page, Mrs. Gertrude W., Aberdeen, N. C.  
 Pagels, Arthur, Cincinnati, Ohio  
 Parker, L. G., Cleveland, Ohio  
 Parks, Mrs. H. E., Trinidad, Calif.  
 Parrott, Miss Barbara, San Mateo, Calif.  
 Pearsall, Mrs. H. May, Eureka, Calif.  
 Perkins, Mrs. A. L., St. Louis, Mo.  
 Perrin, L. W., Bernardsville, N. J.  
 Phelps, Miss Claudia Lea, Aiken, S. C.  
 Phelps, Mrs. Vanderbilt, Monterey, Calif.  
 Pickus, Theodore, Watertown, Mass.  
 Pinkhurst, Mrs. Flora W., Minocqua, Wisc.  
 Poland, H. R., Westfield, N. J.  
 Porter, Dr. Emery M., Providence, R. I.  
 Porter, John, Cambridge, Mass.  
 Prentice, Mrs. W. E., Batavia, N. Y.  
 Pugh, J. J., Springtown, Idaho  
 Punnett, R. F., Rochester, N. Y.  
 Putnam, Mrs. A. S., Manistique, Mich.  
 Putnam, Dr. Helen C., Providence, R. I.  
 Rankin, Daniel Whitcomb, Santa Ana, Calif.  
 Rathbun, Lawrence W., Concord, N. H.  
 Read, Miss Florence H., Barre, Mass.  
 Redington, John C., New York, N. Y.  
 Reiss, Mrs. Peter, Sheboygan, Wisc.  
 Reynolds, A. O., Painesville, Ohio  
 Rhoades, Miss Mabel C., Syracuse, N. Y.  
 Rhoades, Verne, Asheville, N. C.  
 Richardson, M. N., Davenport, Iowa  
 Riley, Miss Cathryn V., Patchogue, N. Y.  
 Rima, Jr., Lt. (j.g.) W. H., Sampson, N. Y.  
 Robbins, P. W., East Lansing, Mich.  
 Roblee, Mrs. Joseph H., St. Louis, Mo.  
 Rockefeller, William A., New York, N. Y.  
 Rodgers, O. A., New Castle, Pa.  
 Rosecrans Foundation, The, Los Angeles, Calif.  
 Ross, Charles R., Athens, Ga.  
 Ruegnitz, Miss Rose Lena, Cedar Falls, Iowa  
 Runyon, Mrs. Mary A., Avalon, Calif.  
 Ruprecht, Lt. Philip de N., Detroit, Mich.  
 Sachse, William R., Wilmette, Ill.  
 Schildering, L. H., Cincinnati, Ohio  
 Seinsheimer, Sr., Mrs. Frank, Cincinnati, Ohio  
 Sener, Miss Ruth, Lancaster, Pa.  
 Sharpe, Miss Ellen D., Providence, R. I.  
 Sheats, Mrs. Dorothea, Arlington, Va.  
 Shelly, David B., Elizabethtown, Pa.  
 Shelton, J. G., Statesville, N. C.  
 Sherman, Mrs. Grace B., Winnetka, Ill.  
 Sherrill, J. H., Pensacola, Fla.  
 Simonds, Miss Lilian M., Milwaukee, Wisc.  
 Simmonds, Miss Alice, Newark, N. J.  
 Slicer, Miss Henrietta W., Baltimore, Md.

Smith, Dennis V., Long Beach, Calif.  
 Smith, H. A., Guntersville, Ala.  
 Smith, Ned A., Corpus Christi, Texas  
 Smythe, Mrs. Joseph P., Sayville, N. Y.  
 Speese, Frank H., Ontonagon, Mich.  
 Stanton, F. W., Holland, Mich.  
 Starrett, Mrs. Paul, Greenwich, Conn.  
 Storrow, James J., Boston, Mass.  
 Stringham, Mrs. Frank, Berkeley, Calif.  
 Strong, Mrs. Henry Alvah, Winston-Salem, N. C.  
 Suder, Miss Lenore, Chicago, Ill.  
 Sutphen, Henry B., East Orange, N. J.  
 Tate, Mrs. H. C., Westport, Conn.  
 Taylor, Mrs. Thomas, Columbia, S. C.  
 Tesaker, Arvid, Traverse City, Mich.  
 Tezky, Lt. Frank J., Camp Breckinridge, Ky.  
 Thayer, Mrs. Ezra Ripley, Boston, Mass.  
 Thomas, Miss Elizabeth, Cleveland, Ohio  
 Thomas, Harold E., Gloucester, Va.  
 Tilderquist, Dr. D. L., Duluth, Minn.  
 Tomlinson, R. E., Montclair, N. J.  
 Tuttle, Horace B., Cleveland, Ohio  
 Tyson, Jr., Mrs. Carroll S., Chestnut Hill, Pa.  
 Vaughan, Mrs. Henry G., Sherborn, Mass.  
 Visser, S. S., Bloomington, Ind.  
 Wagner, John Paul, Waukegan, Ill.  
 Walker, C. F., Cleveland, Ohio  
 Walker, Lt. (j.g.) Frederick R., New York, N. Y.  
 Wanzer, Willets G., Pacific Grove, Calif.  
 Waring, Mrs. James J., Denver, Col.  
 Webster, Laurence J., Holderness, N. H.  
 Weill, Miss Irma, Bakersfield, Calif.  
 Welton, Earl V., Deer Lodge, Mont.  
 Werner, Miss Elsa, Philadelphia, Pa.  
 Wetmore, Miss Edith, New York, N. Y.  
 Wheeler, Mrs. Frederick S., New York, N. Y.  
 White, Miss Elizabeth C., Whitesbog, N. J.  
 Wiczorek, Max, Los Angeles, Calif.  
 Wiegman, Frederick H., Alvarado, Calif.  
 Wiley, W. O., New York, N. Y.  
 Williams, William, New York, N. Y.  
 Wilson, Orme, Washington, D. C.  
 Winn, Charles V., Pasadena, Calif.  
 Winslow, Carlisle P., Madison, Wisc.  
 Winters, W. G., Houston, Texas  
 Woodman, Miss Hannah, Portland, Me.  
 Woods, John B., Washington, D. C.  
 Woodward, Mrs. Ernest L., Le Roy, N. Y.  
 Woodman, Edward, Haverford, Pa.  
 Work, Lt. Col. Herman, New York, N. Y.  
 Wright, John S., Indianapolis, Ind.  
 Wriston, E. N., Prosperity, W. Va.  
 Zeithamel, Jr., F. J., Iowa City, Iowa  
 Zimmermann, A. G., New York, N. Y.  
 Anonymous—Five Individuals

## INDUSTRIAL:

Armstrong Forest Company, Johnsonburg, Pa.  
 Badger Tissue Mills, Kaukauna, Wisc.  
 Baker, Fentress & Company, Chicago, Ill.  
 Berst-Forster-Dixfield Company, New York, N. Y.  
 Blankinship Lumber Company, C., Bay Springs, Miss.  
 Brooks-Scanlon Corporation, Foley, Fla.  
 Brown Company, Berlin, N. H.  
 Brown & Sons Lumber Company, W. P., Louisville, Ky.  
 Bryant & Sons Company, J. M., Clarks-ville, Ark.  
 Champion-International Company, Lawrence, Mass.  
 Champion Paper and Fibre Company, The, Canton, N. C.

# INDUSTRIAL: (Cont'd)

Chesapeake Corporation of Virginia, The, West Point, Va.  
 Chickasaw Wood Products Company, Memphis, Tenn.  
 Chillicothe Paper Company, The, Chillicothe, Ohio  
 Cleveland-Cliffs Iron Company, The, Cleveland, Ohio  
 Cleveland Tractor Company, The, Cleveland, Ohio  
 Consolidated Timber Company, Portland, Ore.  
 Consolidated Water Power and Paper Company, Wisconsin Rapids, Wisc.  
 Container Corporation of America, Chicago, Ill.  
 Cornell Wood Products Company, Chicago, Ill.  
 Crown Zellerbach Corporation, Seattle, Wash.  
 Deere and Company, Moline, Ill.  
 Denkmann Lumber Company, Canton, Miss.  
 Dennison Manufacturing Company, Framingham, Mass.  
 Disston & Sons, Inc., Henry, Philadelphia, Pa.  
 Dorney Manufacturing Company, Chicago, Ill.  
 Eastern Corporation, Bangor, Me.  
 Eastman Kodak Company, Rochester, N. Y.  
 Ecusta Paper Corporation, Pisgah Forest, N. C.  
 Edison, Incorporated, Thomas A., West Orange, N. J.  
 Elmendorf Corporation, The, Chicago, Ill.  
 Fernstrom Paper Mills, Pomona, Calif.  
 Finch, Pruyn and Company, Incorporated, Glens Falls, N. Y.  
 Florida Pulp and Paper Company, Pensacola, Fla.  
 Gaylord Container Corporation, St. Louis, Mo.  
 Glatfelter Company, P. H., Spring Grove, Pa.  
 Gurdon Lumber Company, Inc., Gurdon, Ark.  
 Hammond Bag & Paper Company, Wellsburg, W. Va.  
 Harrisville Combing Mills, Inc., Harrisville, R. I.  
 Haskellite Manufacturing Corporation, Chicago, Ill.  
 Hollingsworth & Whitney Company, Boston, Mass.  
 Homasote Company, Trenton, N. J.  
 Hudson Pulp and Paper Corporation, New York, N. Y.  
 Hummel-Ross Fibre Corporation, Hopewell, Va.  
 International Harvester Company, Chicago, Ill.  
 International Paper Company, New York, N. Y.  
 Jacobs Cooperage Company, K. W., Milwaukee, Wisc.  
 Johnson Lumber Corporation, C. D., Portland, Ore.  
 Keyes Fibre Company, Waterville, Me.  
 Kimberly-Clark Corporation, Neenah, Wisc.  
 Kingston Manufacturing Company, Conway, S. C.  
 Koppers Company, Wood Preserving Division, Pittsburgh, Pa.  
 Lagerloef Trading Company, Inc., New York, N. Y.  
 Lee Paper Company, Vicksburg, Mich.  
 Longview Fibre Company, Longview, Wash.

Marathon Paper Mills Company, Rothschild, Wisc.  
 Masonite Corporation, Chicago, Ill.  
 Mead Corporation, The, Chillicothe, Ohio  
 Menasha Wooden Ware Company, Menasha, Wisc.  
 Mengel Company, The, Louisville, Ky.  
 Moss Tie Company, Inc., T. J., St. Louis, Mo.  
 National Container Corporation, Jacksonville, Fla.  
 Neenah Paper Company, Neenah, Wisc.  
 Nettleton Timber Company, Seattle, Wash.  
 North Carolina Pulp Company, Camden, N. J.  
 Northwest Paper Company, The, Cloquet, Minn.  
 Ostrander Railway and Timber Company, Molalla, Ore.  
 Otsego Falls Paper Mills, Inc., Otsego, Mich.  
 Pacific Marine Supply Company, The, Seattle, Wash.  
 Parker-Young Company, The, Lincoln, N. H.  
 Parsons Investment Company, Seattle, Wash.  
 Penobscot Chemical Fibre Company, Boston, Mass.  
 Pioneer Cooperage Company, St. Louis, Mo.  
 Quaker Oats Company, The, Chicago, Ill.  
 Rayonier Incorporated, Seattle, Wash.  
 Reader's Digest, The, Pleasantville, N. Y.  
 Rhinelander Paper Company, Rhinelander, Wisc.  
 Riegel Paper Corporation, New York, N. Y.  
 Roaring River Logging Company, Portland, Ore.  
 Ross Carrier Company, The, Benton Harbor, Mich.  
 Row River Lumber Company, Portland, Ore.  
 Royal Cotton Mill Company, Wake Forest, N. C.  
 St. Croix Paper Company, Boston, Mass.  
 St. Paul & Tacoma Lumber Company, Tacoma, Wash.  
 St. Regis Paper Company, New York, N. Y.  
 Seagram & Sons, Inc., Joseph E., Louisville, Ky.  
 Simpson Logging Company, Shelton, Wash.  
 Singer Manufacturing Company, The, New York, N. Y.  
 Smith Lumber Company, W. T., Chapman, Ala.  
 Soundview Pulp Company, Everett, Wash.  
 Southern Lumberman, Nashville, Tenn.  
 Southern Wood Preserving Company, Atlanta, Ga.  
 Southland Paper Mills, Inc., Lufkin, Tex.  
 Southport Corporation, Inc., New Orleans, La.  
 Storey Lumber Company, W. M., Winston-Salem, N. C.  
 Strathmore Paper Company, West Springfield, Mass.  
 Sutherland-Innes Co. of New York, New York, N. Y.  
 Thilmany Pulp and Paper Company, Kaukauna, Wisc.  
 Tomahawk Kraft Paper Company, Tomahawk, Wisc.  
 Tribune Company, Chicago, Ill.  
 Union Bag & Paper Corporation, New York, N. Y.  
 Uptegrove Lumber Company, Newark, N. J.

West Coast Plywood Company, Aberdeen, Wash.  
 West Virginia Pulp and Paper Company, New York, N. Y.  
 Western Management Company, Portland, Ore.  
 Westfield River Paper Company, Inc., Russell, Mass.  
 Weyerhaeuser Timber Company, Tacoma, Wash.  
 Whaley Lumber & Construction Company, Troy, Ala.  
 Willamette Valley Lumber Company, Portland, Ore.  
 Wisconsin Land & Lumber Company, Hermansville, Mich.  
 Wright-Blodgett Company, Limited, Portland, Ore.  
 Wyoming Tie & Timber Company, Chicago, Ill.

## ASSOCIATIONS:

American Forestry Association, The, Washington, D. C.  
 Arizona Wildlife Federation, Tucson, Ariz.  
 American Game Association, New York, N. Y.  
 Association of American Railroads, Washington, D. C.  
 Association of Edison Illuminating Companies, New York, N. Y.  
 California Forest Protective Association, San Francisco, Calif.  
 California Redwood Association, San Francisco, Calif.  
 Camp Fire Club, New York, N. Y.  
 Conservation Association of Southern California, Los Angeles, Calif.  
 Distilled Spirits Institute, Inc., Washington, D. C.  
 Eastern Wooden Box Association, Boston, Mass.  
 Edison Electric Institute, New York, N. Y.  
 Forest Farmers Association Cooperative, Valdosta, Ga.  
 Garden Club of America, The, New York, N. Y.  
 Indiana Coal Producers Association, Terre Haute, Ind.  
 Macon Chamber of Commerce, Macon, Ga.  
 Massachusetts Forest and Park Association, Boston, Mass.  
 Mississippi Forestry & Chemurgic Association, Jackson, Miss.  
 New Connecticut Chapter, Daughters of the American Revolution, Painesville, Ohio  
 Northeastern Lumber Manufacturers Association, Inc., New York, N. Y.  
 North Idaho Forestry Association, Lewiston, Idaho  
 Ohio Forestry Association, Wooster, Ohio  
 Oregon Forest Fire Association, Portland, Ore.  
 Society for the Protection of New Hampshire Forests, Concord, N. H.  
 Society of American Foresters, Washington, D. C.  
 Southern Hardwood Producers, Inc., Memphis, Tenn.  
 Southern Pine Association, New Orleans, La.  
 Southern Pulpwood Conservation Association, Atlanta, Ga.  
 Texas Forestry Association, College Station, Texas  
 West Coast Lumbermen's Association, Seattle, Wash.  
 Western Pine Association, Portland, Ore.  
 Willamette Valley Lumbermen's Association, Eugene, Ore.

## CONSERVATION CALENDAR

Important Bills in Congress With Action  
January 3 - January 18, 1945

### Governmental Functions

H. R. 538—POAGE—To empower the Secretary of Agriculture to requisition certain material, equipment, and supplies not needed for the prosecution of the war and for the national defense and to use such material, equipment and supplies in soil- and water-conservation work and to distribute such material, equipment and supplies by grant or loan to public bodies. Introduced January 3, 1945 and referred to the Committee on Agriculture.

H. R. 585—MRS. SMITH, Maine—To provide for the establishment and maintenance of forest products pilot plants, and for other purposes. Introduced January 3, 1945 and referred to the Committee on Agriculture.

### Grazing

S. 31—McCARRAN—To amend the Taylor Grazing Act for the purpose of providing for greater participation by district advisory boards in administration of the act. Introduced January 6, 1945 and referred to the Committee on Public Lands and Surveys.

### Lands

H. R. 45—ELLIOTT—To provide that, in disposing of lands which have been acquired by the United States for national defense or war purposes, a preference shall be given to the former owners of such lands or their successors in interest. Introduced January 3, 1945 and referred to the Committee on Public Buildings and Grounds.

H. R. 1407—ANCELL—To authorize the acquisition of forest lands adjacent to and over which highways, roads, or trails are constructed or to be constructed wholly or partially with federal funds in order to preserve or restore their natural beauty. Introduced January 15, 1945, and referred to the Committee on Agriculture.

### National Forests

S. 8—McCARRAN—To provide for the use of 10 percent of the receipts from national forests for the making of range improvements within such forests. Introduced January 6, 1945 and referred to the Committee on Agriculture and Forestry.

S. 33—McCARRAN—Relating to the management and administration of national forest grazing lands. Introduced January 6, 1945 and referred to the Committee on Public Lands and Surveys.

### National Monuments

H. R. 409—FERNANDEZ—To amend section 2 of the Act entitled "An Act for the preservation of American antiqui-

## CONSERVATION IN THE 1945-1946 BUDGET

Appropriation and Project	1946 Budget Estimate	1945 Appropriation
Department of Agriculture		
Forest Service: (Total).....	\$40,868,300	\$33,373,756
General Administration .....	542,000	625,000
National Forests: (Total).....	17,991,100	17,904,426
General Management .....	5,281,399	5,994,077
Maintenance of Structures.....	1,000,000	930,659
Fire Control .....	5,545,180	6,771,386
Forest Pest Control .....	95,674	109,674
Timber Sales .....	2,799,035	2,361,900 <sup>1</sup>
Grazing Administration .....	550,000	497,795
Wildlife Protection .....	87,634	91,086
Policing .....	175,000	161,496
Land-use Management .....	1,461,786	520,226
Water-use Management .....	32,572	25,706
Improvement Constructions .....	76,566	79,096
Planting and Plantation Care .....	244,254	186,325
Fighting Forest Fires .....	100,000	100,000
Land Acquisition .....		75,000
Cooperative Work: (Total).....	8,032,500	7,081,466
Fire Suppression (Clarke-McNary) .....	7,300,000	6,300,000
Forestry Cooperation .....	732,500	781,466
Research: (Total).....	2,204,400	2,269,368
Forest Management (Incl. Forest Influences) .....	520,900	593,110
Range Investigations .....	250,000	288,475
Forest Products .....	1,228,900	1,147,519
Forest Resources Investigations (Includes Forest Economics) .....	204,600	240,264
Roads and Trails.....	10,133,000	4,161,496
Naval Stores Investigations.....	125,000	112,100
White Pine Blister Rust Control .....	1,840,300	1,219,900
Forestry in Other Agricultural Bureaus: (Total)....	32,958,239	31,784,701
Bureau of Entomology and Plant Quarantine		
Gypsy and Brown-tail Moth Control .....	359,800	409,320
Dutch Elm Disease Eradication.....	252,000	300,000
Forest Insects .....	193,800	202,000
White Pine Blister Rust Control.....	2,032,000	840,953
Soil Conservation Service (Total) .....	29,754,300	29,637,248
Extension Service		
Private Forestry Cooperation .....	106,839	108,380
Bureau of Plant Industry		
Forest Diseases .....	232,700	255,300
National Arboretum .....	26,800	31,500
Total .....	\$73,826,539	\$65,158,457
Department of the Interior		
Grazing Service: (Total).....	\$ 1,693,700	\$ 1,141,240
General Administration .....	1,485,200 <sup>2</sup>	1,017,740
Range Improvements .....	200,000	115,000
Leasing Lands .....	8,500	8,500
General Land Office: (Total).....	717,500	413,900
Forest Management and Protection Public Domain (Alaska) .....	175,000 <sup>3</sup>	33,900
O and C Lands—Administration and Protection .....	317,500	335,000 <sup>4</sup>
Range Improvements Outside Grazing Districts .....	50,000	45,000
Fire Protection and Timber Management—Public Domain .....	175,000	
Bureau of Indian Affairs: (Total).....	903,200	691,000
Administration of Forests and Range Resources .....	891,200 <sup>5</sup>	679,000 <sup>6</sup>
Forest Fire Suppression .....	12,000	12,000
Soil and Moisture Conservation .....	1,500,000	1,200,000
White Pine Blister Rust Control.....	377,700	203,173
National Park Service (Total).....	4,962,400	4,740,810
Fish and Wildlife Service (Total).....	7,748,900	7,085,548
Office of Fishery Coordination (Total).....	225,000	290,000
Total .....	\$18,128,400	\$15,765,671
Tennessee Valley Authority (Resource Development Programs) .....	\$ 7,453,000 <sup>7</sup>	\$ 6,599,657 <sup>8</sup>

<sup>1</sup>Supplemental appropriation of \$596,000 not included.

<sup>2</sup>Includes Forest Fire Protection—National Defense.

<sup>3</sup>Includes \$110,825 transferred from "Fire protection of forests, forest industries, and strategic facilities (National Defense)."

<sup>4</sup>Including emergency fire (\$35,000).

<sup>5</sup>Includes \$120,406 transferred from "Fire protection of forests, forest industries and strategic facilities (National Defense)."

<sup>6</sup>Includes "Expenses, Sale of Timber—\$175,000."

<sup>7</sup>Estimated 1946 budget of the Tennessee Valley Authority is \$54,711,000, of which \$7,453,000 are for activities involving resource development. From this latter sum, the proposed allocation to the development of forest and wildlife resources is \$614,000.

<sup>8</sup>Estimated, fiscal year 1946.



ties," approved June 8, 1906. Introduced January 3, 1945 and referred to the Committee on the Public Lands.

H. R. 1112—O'CONNOR, Montana—To repeal the Act entitled "An Act for the preservation of American antiquities," approved June 8, 1906. Introduced January 8, 1945 and referred to the Committee on the Public Lands.

#### Payments-to-States

S. 67—HAYDEN—To authorize the participation of states in certain revenues from national parks, national monuments and other areas under the administrative jurisdiction of the National Park Service. Introduced January 6, 1945 and referred to the Committee on Public Lands and Surveys.

S. 111—HATCH, *et al* (H. R. 664—COLMER)—To revise the method of determining the payments to be made by the United States to the several states with respect to conservation lands administered by the Department of Agriculture. Introduced January 6, 1945 and referred to the Committee on Agriculture and Forestry.

H. R. 1292—PETERSON, Florida—Providing for payments to the State of Wyoming and for rights-of-way, including stock driveways, over and across federal lands within the exterior boundary of the Jackson Hole National Monument, Wyoming. Introduced January 9, 1945 and referred to the Committee on the Public Lands.

H. R. 1622—WHITTEN—To provide for payments to the States with respect to certain lands of the United States. Introduced January 18, 1945, and referred to the Committee on the Public Lands.

#### Water and Stream Control

S. 35—OVERTON, Louisiana—Authorizing the construction, repair and preservation of certain public works on rivers and harbors. Introduced January 6, 1945 and referred to the Committee on Commerce.

H. R. 519—MUNDT—To prevent pollution of the waters of the United States and to correct existing water pollution. Introduced January 3, 1945 and referred to the Committee on Rivers and Harbors.

H. R. 587—MRS. SMITH, Maine (H. R. 592—SPENCE) To create a Division of Water Pollution Control in the United States Public Health Service. Introduced January 3, 1945 and referred to the Committee on Rivers and Harbors.

#### Miscellaneous

H. R. 494—MRS. LUCE—To assist the armed forces to provide manpower for harvesting, timbering, canning, and other essential activities in seasonal emergencies. Introduced January 3, 1945, and referred to the Committee on Military Affairs.

## "Dean of Forest Products" Retires

BACK in 1902 a young mechanical engineer recently graduated from Stevens Institute of Technology came to Washington to take a job as timber tester. His timber testing laboratory was the cellar of the old red-brick Chemistry Building, long since torn down to make way for the big new South Building of the Department of Agriculture. For want of a tank, Washington's Tidal Basin was used to soak timber beams when he wanted to test the effect of moisture on the strength of wood. He had to cart his beams to the Basin, submerge them with the aid of stones or iron weights, and later on wade in and fish them out. Sometimes the timbers broke loose from the weights and floated away down the Potomac.

That was the way Harold S. Betts began his timber testing, inaugurating the research that is represented today by the U. S. Forest Products Laboratory, the largest wood-research center in the world. With the unofficial title of Dean of Forest Products, Harold Betts retired from active duty with the U. S. Forest Service last month, after forty-two years in government service.

It was Betts and his co-worker, McGarvey Cline, who thought up the idea of a Forest Products Laboratory. In the early days of the Forest Service, Betts traveled about the country a good bit on timber testing missions. The thought occurred, why not bring the wood to the testing machines, instead of hauling the heavy equipment around the country to the wood. The Forest Service liked the idea. The proposal for a central laboratory was taken up with several universities but the University of Wisconsin offered the best inducements, and Betts and Cline were sent to Madison to select a site. In a small building constructed by the University, the Forest Products Laboratory got under way in 1910. The work expanded rapidly. A big new modernistic building was built during the 30's—and "Madison's House of Magic" is now famous the world over. Earlier, Betts had been sent to Yale

to conduct some tests on southern pine timbers. While there he taught forest school students something about the strength of wood. William B. Greeley, later chief of the Forest Service, was one of his pupils. Betts also operated a testing laboratory for a while at Purdue University, and later went to Denver to conduct a wood utilization office and to supervise a timber testing laboratory at Boulder, Colorado. On one trip to the Southwest he studied the possibilities of ponderosa pine as a source of naval stores. After some search he picked up a real "down South" turpentine man to help him tap trees. They dug a large hole in which to dump the gum they collected, after it had been tested. One morning when the hole was nearly full they found a cow in it; it took the combined efforts of all available hands to extricate the gummed-up bovine.

That wasn't the only excitement Betts ran into. Landing in El Paso one day, he found himself in the middle of a wild shooting scene as men on horseback chased an escaped prisoner down the street. Another time, when he got off the train in Alamogordo, New Mexico, a thoroughly dead Indian stretched out on the baggage truck was the only one to greet him at the deserted station.

In 1912, Betts went to the Forest Products Laboratory, where he held a number of positions. Transferred back to Forest Service headquarters in Washington in 1916, he was placed in charge of what was then called the Office of Industrial Investigations, later known as the Division of Forest Products. He continued with this Division until his retirement.

An expert on timber properties, Betts was consulted on timber specifications and uses by many engineers and others in government agencies and in industry. He is the author of a series of more than fifty pamphlets on the properties and uses of American woods.



Harold S. Betts



# *Announcement*

## **Cletrac joins OLIVER**

The acquisition of "Cletrac" by The OLIVER Corporation proves the importance with which the corporation views the manufacturing and marketing of tractors for industrial and construction needs. To meet the requirements of these users, an Industrial Division of the corporation has been established.

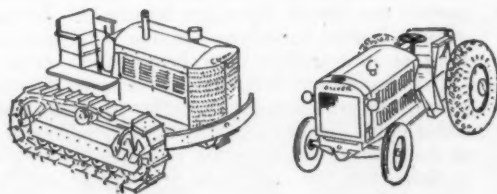
The Industrial Division of The OLIVER Corporation will have its headquarters at 19300 Euclid Avenue, Cleveland 17, Ohio. In addition to the well known "Cletrac" line of track-type tractors and allied equipment, the Industrial Division will also have in its charge, sales and service of industrial tractors of the wheel type now in development as well as other industrial products long manufactured by The OLIVER Corporation.

"Cletrac" Tractors for agricultural service will be handled by the Agricultural Division of The OLIVER Corporation, 400 West Madison Street, Chicago 6, Illinois.

Bringing to "Cletrac's" already ample research, engineering, manufacturing and service the corresponding facilities of The OLIVER Corporation, means that a complete line of even better "Cletracs" will be manufactured in the future and that service to "Cletrac" owners will be enhanced.

The dealers who sell OLIVER "Cletrac" Tractors are now in a position to serve you more completely than ever. The OLIVER Corporation, 400 West Madison Street, Chicago 6, Illinois.

### **The OLIVER Corporation**



## How to Restore Forest Wealth

(From page 62)

years ago I cut four carloads of pine logs off that twenty acres. Used to be all pine—some hickory and oak and other trees seeding in now under the pine. They'll take it some day."

"How long have you lived here?" I asked.

"About eighty years," he said, smiling, and for the first time I noticed how deeply carved were the lines in his face—lines of patience, fatigue, ruggedness, suffering and resignation.

"My wife and I live here alone. Our children are married and gone."

We talked on. A big collie dog came up, ran his nose under my hands and rooted upward for attention, then went over to his master, licked his hand and sat down slapping his tail on the ground.

Thus, after a while, I left them and, walking alone, pondered the history of land use. This area of a hundred acres containing an undisturbed oak soil, an abandoned field, and an old field regenerated to pine and being superseded by native hardwoods is difficult to find even in Vinton County. It contains all stages of soil conditions from the original through cultivation and abandonment to recovery under forest cover. It formed the basis for my story.

To judge recovery you must have something by which to measure it. When you have been ill for a long time you weigh yourself, look in the mirror and test your endurance and capacity to work. The observations are definite. So, as I walked up the hill I wondered what symptoms of sick soil and recovery I should find. My curiosity grew with each step.

There is nothing quite so interesting as a mystery to unravel or a puzzle to solve. Here was a situation containing all the sorry elements of the story of land abuse that had made Vinton County poor. Here was recorded the process that had substituted want for abundance, pulled the veil of resignation and defeat over the gleaming eyes of lusty ambition, driven the sons away from home and reduced the eagerly occupied homey cabin to crumbling disuse. Yes, and could it be possible that by some strange quirk nature had left a clue that may reverse this pathetic process of soil and forest decadence?

I entered the oak woods. The leaves of the trees moved gently in the light breeze—the straight-fluted, dark-barked chestnut oak; the gray-barked white oak; the sombre black oak; and the pinkish-gray-barked scarlet oak. Last year's leaves rustled underfoot and the ground was soft to the step. I stooped, raked the leaves away and scooped up a

handful of loose surface soil. It was dark gray to a depth of at least two inches—mellow, root-filled and had an odor like newly plowed land after a spring rain. Even after all these decades of over-cutting and burning it still had life. Soil in almost any kind of hardwood forest is hard to destroy as long as it remains litter-covered. Faulty cultivation and erosion are its arch enemies.

As I proceeded along the east slope of the ridge across a little side valley, the chestnut oak changed order of first place in the stand with white oak. Where chestnut oak made up about a half of the stand and white oak one-fourth, the order was reversed. Scarlet and black oak retained about the same percentage place in both stands, with a sprinkling of hickory, dogwood, sassafras, red maple and serviceberry. The soil had the same dark mellow surface, and a softness to the step.

None of these hardwood trees was over eight inches in diameter. The stands were thin and overcut to the limit. Scarred butts and blackened stumps were evidence of recurring fires. It is said that as soon as a tree reaches railroad tie size someone cuts it. These oak stands were only remnants of a once fully stocked virgin wood.

The astounding ability of the forest to endure abuse made me hopeful of forest restoration as I walked along. Here was producing power enough to return prosperity to this impoverished county if only the most simple rules of forestry were practiced. The soil is there; the site is stocked; the stand composition can be adjusted by proper silviculture. With protection from fire and cessation of destructive overcutting, nothing can prevent the return of a wealth-producing forest.

The abandoned field lay on an east slope near the top of the ridge. It had apparently been out of use only a few years. Smilax, field sorrel, cinquefoil, dewberry vines and a clump of field daisies here and there partially covered the ground. I bored some holes and examined the soil. The silty, mellow surface was absent. The auger bit grated against broken sandstone. In the bottoms of little gulleys platy brown and yellow sandstone fragments were exposed. Only on comparatively level areas—little patches a rod or so square at the bases of slopes in the undulating surface—was the soil fairly free from rocks. This was the wash soil from above—no litter, no darkened fertile layer. The ground was hard and jarring to the step. Gray colored grasshoppers fluttered with harsh rasping

flight from the hot surface. The temperature was at least twenty degrees higher than it was in the oak woods.

One link in the chain of land use from deforestation to restoration was still missing—the regenerated old abandoned field. I left the open field and descended the slope into the pine woods.

The recuperating power of bare land is a heartening force, but here was a really difficult situation. Natural restocking and regeneration of a burned, abused, overcut stand whose soil is undisturbed is simple and well understood; but restoration of a forest on cultivated eroded soil stripped of its organic-rich upper soil, with a compact, dry and infertile surface, is an entirely different situation. Could it be done?

Here and there, as I walked among the pines, I observed almost obliterated ridges in the soil, reminders of a gullied field. They were healed now and litter-covered. I looked up; the sky was almost hidden; the tree crowns had formed a closed canopy. By actual count there were 131 shortleaf pines an acre averaging nine and a half inches in diameter, eighty-two averaging seven and a half inches, and forty-three averaging slightly better than four and a half. The stand, originally pure shortleaf pine, now had twenty percent of its total stem area in hardwoods. The pines healed the erosion scars, now the hardwoods were taking over. Completion of the cycle from hardwoods to hardwoods was in sight.

The forest stand looked good—no failure here. But how about soil recovery? Maybe it would grow pines, but was the soil good enough for hardwoods? Organic matter had penetrated the once raw mineral soil to a depth of two inches; the soil was mellow and absorptive. By actual test the shortleaf pine soil absorbed water seven times as fast as did the soil of the adjacent open field. By analysis the quantities of organic matter and nitrogen an acre were equal to or better than those of the undisturbed hardwood soils. Twenty-seven thousand pounds of fresh and partially decomposed litter lay on the average acre of the pine area. There was almost none on the open field. One thousand pounds of nitrogen an acre was found in the surface soil of each of the hardwood stands and an equal quantity in the surface pine soil. Only 600 pounds an acre was found in the surface soil of the open field. The old field abandoned sixty years previously, and now covered with pine, had recovered by every test and was again fruitful.

(Turn to page 90)

a

HIT



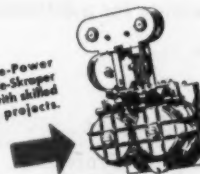
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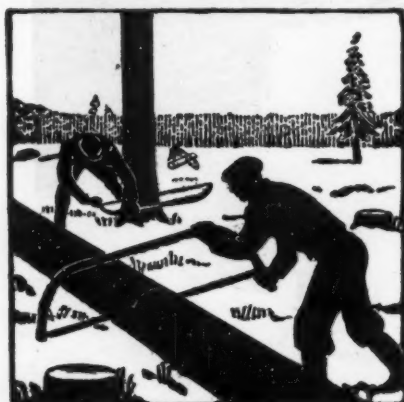


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Business or Profession \_\_\_\_\_

Nominated by \_\_\_\_\_

Date \_\_\_\_\_

## New AFA Officers Elected

WILLIAM STARKE ROSECRANS, of Los Angeles, California, was reelected President, and I. J. Roberts of Washington, D. C., was reelected Treasurer of The American Forestry Association by referendum vote of the members held in December. Both Mr. Rosecrans and Mr. Roberts will serve for terms of one year. Randolph G. Pack, of Darien, Connecticut, was reelected as a member of the Board of Directors to serve a term of five years. New Directors elected also for terms of five years were Walter J. Damtoft, of Canton, North Carolina, former President of the Southern Pulpwood Conservation Association, and Glenn L. Martin, of Baltimore, Maryland, President of the League of Maryland Sportsmen. Mr. Damtoft succeeds Mr. L. F. Livingston, of Wilmington, Delaware, and Mr. Martin succeeds Mr. Goodwin B. Beach, of New Haven, Connecticut, both of whose terms as Directors expired December 31.

The amendment submitted to the membership giving the Board of Directors authority to revise the By-Laws from time to time was approved by a vote of 1,849 to 52.

Twenty-one Vice Presidents were elected to serve during 1945 as follows: J. H. Allen, Pensacola, Florida, President, Florida Pulp and Paper Company; Dr. Hugh P. Baker, Amherst, Massachusetts, President, New England Forestry Foundation; I. T. Bode, Jefferson City, Missouri, Director, Missouri Conservation Commission; Lammot du Pont Copeland, Wilmington, Delaware, the du Pont Company; Mrs. John W. Donaldson, New York, N. Y., Chairman, Conservation Committee, The Garden Club of America; George L. Drake, Shelton, Washington, former President, Western Forestry and Conservation Association; D. C. Everest, Rothschild, Wisconsin, former President, The American Paper and Pulp Association; Paul G. Hoffman, South Bend, Indiana, Chairman, Committee for Economic Development; Honorable Harry F. Kelly, Lansing, Michigan, Governor of Michigan; Judge Harley Langdale, Valdosta, Georgia, President, American Turpentine Farmers Association Cooperative; Irving H. Larom, Valley, Wyoming, Member of the Board of Directors, Dude Ranchers' Association; G. B. MacDonald, Ames, Iowa, Department of Forestry, Iowa State College; James G. K. McClure, Asheville, North Carolina, President, Farmers Federation; Duncan McDuffie, San Francisco, California, President, Save-the-Redwoods League; Wheeler McMillen, Philadelphia, Pennsylvania, Editor-in-Chief, *The Farm Journal*; Ernest C. Oberholzer, Ranier, Minnesota, President, Quebec-Superior Council; Allen S. Peck,

Denver, Colorado, Member of the Board of Directors, Colorado Forestry and Horticulture Association; Mrs. George D. Pratt, New York, N. Y.; Honorable Earl Snell, Salem, Oregon, Governor of Oregon; Mrs. Bertram P. Thomas, Seattle, Washington, Chairman, Conservation of Natural Resources Committee, General Federation of Women's Clubs; and Frederic C. Walcott, Norfolk, Connecticut, President, American Wildlife Institute.

## Forest Exchange

(From page 52)

it discovered that the McGee Springs-Breakneck trail can be discerned by a ranger familiar with it in past years? And why was it not revealed in the Cains' article that the point at which the Breakneck trail — it only touches the great Three Forks basin, incidentally — leaves the McGee Springs trail is so overgrown that it would be impossible for a newcomer, scientific or otherwise, to find the spot?

During last summer, before my article was written, I made two trips on foot into Three Forks. I first climbed four miles in the hot sun, from Round Bottom up to the rim of the basin, then went in by the route later followed by the rangers. But I attempted to see some of the basin other than just Breakneck Ridge. After reaching the floor of the basin I waded the river more than five miles downstream—because there was no trail—over falls, bluffs and drifts; then climbed out through the deep gap of Hyatt's Ridge.

My second trip was for the purpose of testing just the type of travel the Cains maintain is so simple. I undertook to cut through the jungle from McGee Springs to Raven Fork River in the floor of the basin, carrying a pack consisting only of a lunch, first-aid kit, flashlight and hatchet. For the first mile I by-passed the tree laps and briers of Breakneck without great difficulty, but then attempted to continue out Breakneck and find the old foot trail that once dipped straight down to the Three Forks pool. I climbed over down spruce interwoven with dense rhododendron; on hands and knees I crawled through rhododendron jungles; I fell through moss-covered, invisible spaces between boulders; I slid over slippery rock cliffs. Finally, two hours after leaving the last vestige of a trail, I struck the river two miles below Three Forks pool, then waded the river up stream to the pool.

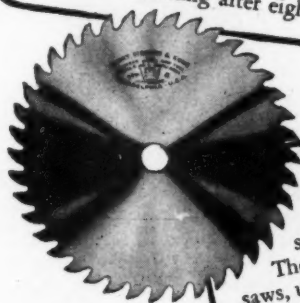
"Special pleading for special advantage!" This is the way the Cains would

(Turn to page 90)

## How a DISSTONEER solved the case of the SYNTHETIC CAMPHOR



A manufacturer of synthetic camphor was using band saws to cut this material. The saws were not cutting very well and were breaking after eight hours of service.



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Book matches, already hard to get, will be fewer in 1945 than they were in 1944, the War Production Board reported recently. Approximately 460 billion matches will be produced in 1945 as compared with approximately 475 billion in 1944, the WPB said, adding that of the 1945 production the armed forces will require 35 per cent of the book matches and the entire output of the strike-on-box matches.

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## Virginia's New Fire Record

A pattern for greater postwar economic benefits from southern forests is seen in the extension, on January 1, of Virginia's forest fire protection system to include the entire state. Virginia thus becomes the first state in the South to place its whole forest area—some 14,545,000 acres—under organized protection.

## Oregon

(From page 76)

what it will produce in rents, or agricultural land, assessed on its productive capacity. The agricultural crop itself is never assessed. In justice to the tree farmer, his property, too; should be taxed on productive capacity.

Oregon's accomplishments in timber taxation as yet are meager. The forest fee and yield tax law, passed in 1929, provides for an annual tax on cutover lands of two and a half to five cents an acre, with an additional severance tax of twelve and a half percent of stumpage value of forest crops harvested from the land. This state-wide law stabilizes taxation on cutover land, protecting forest owners from inequities which might otherwise develop in local taxation. To this degree, it is a definite aid to timber cropping. More equitable taxation on mature timber is still needed to round out the cycle of fair taxation on forest properties.

Forest taxation is not solely a state matter. A 1944 amendment to the federal income tax law computes the values created by growing timber on a capital gains basis. Formerly they were subjected to the income and excess profits rates applicable to ordinary income. The change will do much to encourage timber cropping.

Thirty-six years ago a worried forester prophesied that the nation's timber would be exhausted in twenty years. In 1943, Oregon cut approximately seven billion board feet, the largest production in its history. This rate can be maintained indefinitely by timber cropping. Much industrial forest land in the western part of the state will grow about 750 board feet an acre a year; the best forest lands will run about 1,000 board feet a year, and a few choice sites along the coast have produced more than 1,500 board feet annually for ninety years. With this productive capacity; with an enlightened public attitude toward forest land use; with adequate, economical protection; with reasonable, effective forest practice requirements; and with a beginning made toward fairer forest taxation, the conclusion is obvious.

Timber cropping is on its way in Oregon.

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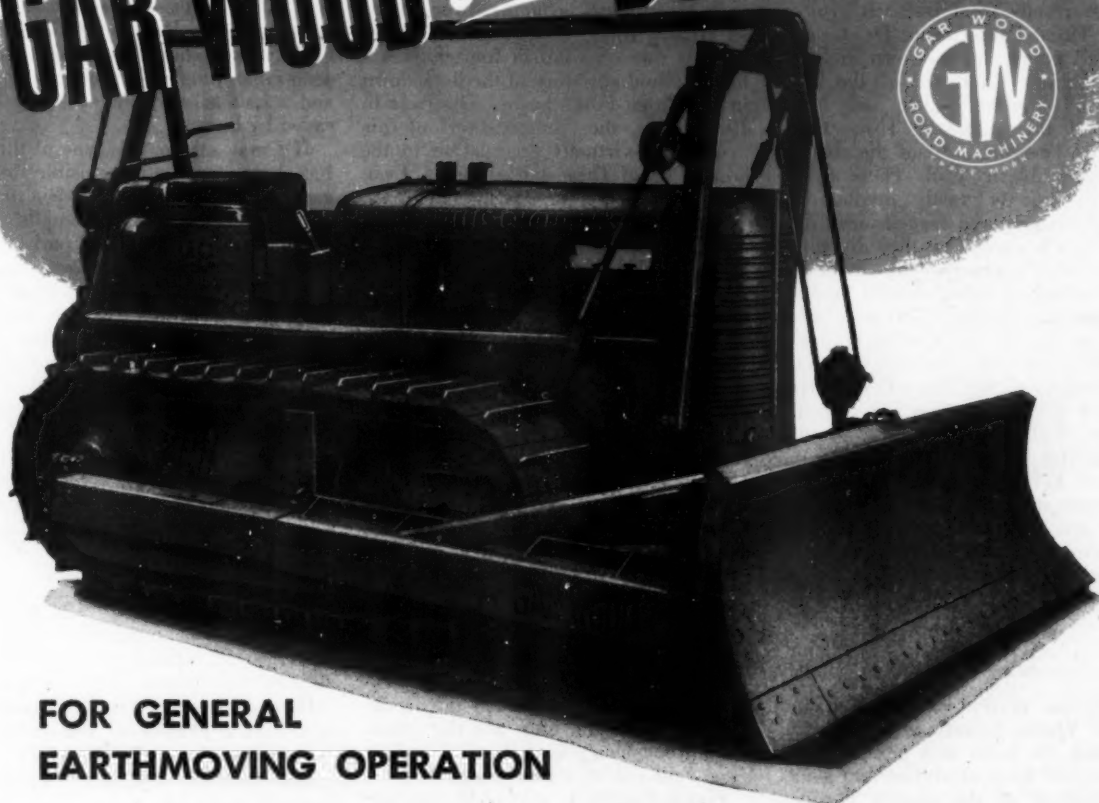
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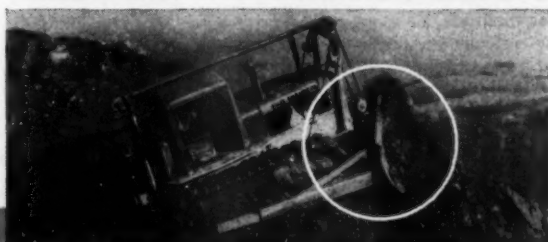
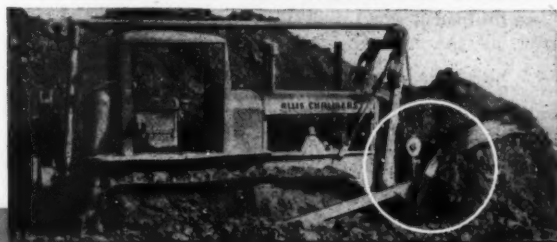
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actually rolls the dirt ahead of it. (See picture below) Moldboard can be angled to either side and tilted. Comes with the famous Gar Wood CABLE CONTROL UNIT, either single or double drum. Now available in limited quantities for essential civilian use. Consult your nearest Allis-Chalmers dealer for assistance in obtaining a War Production Board Release.



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## Forest Exchange

(From page 87)

dispose of the questions I have raised. Yet, they would exclude from Three Forks scientists, nature lovers, fishermen—anyone, male or female, not endowed with unusual stamina and woodsmanship, not tough enough to hike in with pack and equipment. This, despite the fact that the area is not being profitably used for research.

As to results from research projects in the Three Forks basin, Dr. Cain, a scientist, points to his own bulletin, "The Tertiary Character of the Cove Hardwood Forests." The only cove hardwood forests in the Three Forks basin are near the crest of the rim, already accessible by trail. These are eschewed into the vastly predominant hemlock, balsam and spruce forest covering in such a way that they are at the extremities of the hardwood belt, so that the reliability of data collected in them as fair examples of the character of cove hardwood forests would be highly questionable. One may therefore wonder just how helpful was Three Forks in the study for this bulletin. The Cains further point to Willis King's "notes" on fish in 1937. His data were only partly based on Three Forks. And in 1937 the foot trails were still open.

The article cites the "flock of wild turkeys on Breakneck Ridge of undoubtedly pure strain, the preservation of

which is of utmost importance." I am familiar with this flock. It "uses" principally from Hyatt's Bald to Rose's Gap, along Hyatt Ridge which is traversed by a graded trail. The flock also "uses", when beech mast is ripe, on Ledge Bald, close to a campground and completely removed from the research area. It "uses" on Breakneck, in the spruce belt, only when there is no hardwood mast on Hyatt's Ridge and Ledge Bald, and on only one occasion in fourteen years have I found any trace of the flock down in the Three Forks basin. That was in 1932. Thus, the "preservation" of this flock bears virtually no relation to the locking up of Three Forks basin. Even if it did, visitors to the national park are not allowed to carry guns.

As to the rare crossbills located at Three Forks, and "thought" by the Cains to be a nesting population, I was the first to write of these beautiful birds and, with the assistance of my cook, tamed and fed them. Instead of the ten years mentioned, I have known these birds for fourteen years. Not a feather has been harmed. Why have national park naturalists not determined whether or not this is a nesting population? Perhaps if the area was serving its avowed purposes, the question would have been answered long ago.

The statement that "forty" horses

"virtually denuded" a radius of 100 yards in each direction from the campground at Three Forks pool is a gross exaggeration. The horses occupied themselves chiefly in the stream bed, where clumps of rough wild grass occurred, but they were sustained by food packed in at my expense. But even if it were true, the area affected would have been six and a half acres—six and a half acres out of 18,000. Both the Cains and the Park Service should know that the impenetrable jungle surrounding this six and a half acres cannot possibly be invaded by horses.

If I may say so, this type of thinking has been largely responsible for the gap that has developed between national park promises and accomplishments. When asking for the area, park officials prophesied that 10,000 horses would be required to handle riding demands in the Great Smokies. To date, less than 100 have been ample. Why this unfulfilled prophecy? Has the National Park Service encouraged such development? Or is Three Forks but an example of an attitude?

Neither trails nor horses would hurt the Three Forks area. Nor would scientists or nature lovers. So I repeat—will Three Forks ever be available to them again?—Tom Alexander, Waynesville, North Carolina.

## How to Restore Forest Wealth

(From page 84)

Eighty-two percent of the total land area of Vinton County is Muskingum loam and silt loam and closely allied soils derived from sandstone and shale. Sixty percent of the county is steep Muskingum loam and silt loam like most of the area described in this story. It is too steep to cultivate. The Muskingum soils are especially easy to reforest because they have no hardpan or tight subsoil. Erosion may remove the loose rich surface soil and rain and sun form a surface crust, but the subsoil is still pervious. Pine grows well on it. The old-field pine of this story proves the soil can be rebuilt and forest restored by proper methods.

The effects of land use in Vinton County are not all written in the landscape or in words. Much of it never was written or ever will be. Most of it was lost before the realization came that there was a history. The results of important trends often cannot be seen until their cumulative effects break on the consciousness. The most powerful forces in the world are scarcely seen. The busier one is the less likely he is to see where he is going. Much rushing about—too much "on the make" blinds the perspective. Rugged individualism very

busily and effectively wasted the fertile soils of a thousand hills, and the industrious woodsman pridefully split straight fence rails out of walnut timber.

Vinton County is a symbol. Its forest resources were once rich; they are now poor. Can its forests be restored? Yes. Is there lack of knowledge or technique? Yes, some; but more urgent is the need for using the knowledge already available. Vision is needed.

The last time I saw Mr. Carson was in the fall following my first visit. He was out in his yard as I drove up. "Did you do any thinning in that field of pine?" I asked.

"Yes," he replied, "we thinned it several times and it grew all the better for it."

He was a close observer, a good man, and a good citizen, but I doubt that he ever realized the significance of land use and how his fortunes were molded by it.

"How's your good wife?" I asked.

He hesitated an instant. "She isn't well. Can't seem to eat anything—don't seem to have any appetite. Think I'll take my rifle and go up along the timber and get a couple of young squirrels."

He and his good wife have passed on now, and a chapter of human experience in land use is ended.

The present reluctantly turns the pages of the past; but a new chapter begins. Its opening sentences tell of new wonders in wood uses—hard oak plank soaked in chemicals and bent with ease into almost any desired shape; soft wood pressed into blocks dense and hard as ebony; airplane wings moulded out of veneer; woodpulp dissolved and spun into silk; ground wood fabricated into panels or changed into stock food or grain alcohol; shelter, transportation, clothing, food, power from trees.

Somewhere in succeeding chapters of the fascinating story of American forests will be recorded the passing of cheap oil and coal. They will be exhausted sometime, but wood need never fail. The forest restores itself. Good silviculture with cessation of fire and over-cutting will restore productive forests—that is certain. Forest wealth, the real wealth of our hill countries, can return to Vinton County. Demand for forest products will never grow less. Forestry can look into the future with confidence.

## Hurtgen

(From page 77)

and other lines.

Hurtgen had its roads and firebreaks. The firebreaks were only wide enough to allow two jeeps to pass, and they were mined and interdicted by machine-gun fire. In one break there was a tellermine every eight paces for three miles. One stretch of road held 300 tellermine, each one with a pull device in addition to the regular detonator. There were 400 anti-tank mines in a three-mile area.

Hurtgen had its roads, and they were blocked. The German did well by his abatis, his roadblocks made from trees. Sometimes he felled 200 trees across the road, cutting them down so they interlocked as they fell. Then he mined and boobytrapped them. Finally he registered his artillery on them, and his mortars, and at the sound of men clearing them he opened fire.

The first two German lines were screened by barbed wire in concertina strands. The lines themselves were log-and-earth bunkers six feet underground and they were constructed carefully, and inside them were neat bunks built of forest wood, and the walls of the bunkers were paneled with wood. These sheltered the defenders. Outside the bunkers were the fighting positions.

The infantry went through Hurtgen's mud and its splintered forest growth and its mines and its high explosives, mile after mile, slowly and at great cost. But it went through, with an average of perhaps 600 yards gained each day.

The men threw ropes around the logs of the roadblock and yanked the ropes to explode the mines and booby traps in the roadblock, and then they shoved the trees aside to clear the way. The engineers on their hands and knees probed the earth with No. 8 wire to find and uncover non-metallic shoe mines and box mines which the Germans had planted by the thousands. The wire or bayonet was shoved into the ground at an angle in the hope that it would touch the mines on their sides rather than on the tops, for they detonated at two to three pounds' pressure. Scattered on the ground there were little round mines no larger than an ointment box, but still large enough to blow off a man's foot.

At times, when there was a clearing, the engineers used another method to open a path. They looped primacord onto a rifle grenade and then fired the grenade. As it lobbed forward it carried with it a length of primacord, which was then touched off and exploded along the ground with enough force to set off or uncover any shoe mines or S mines hidden underground along its path. In other cases, when the area was known



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## BUY WAR BONDS

to be mined, it was subjected to an ar-  
tillery concentration that blew up the  
mines by the force of the concussion.  
But there could be no certainty that  
every mine was blown, so the advance  
was costly, but the enemy suffered.

One Fourth Division soldier in Hur-  
tgen stepped on a mine and it blew off  
his foot. It was one of those wounds in  
which the arteries and veins are forced  
upward so they are in a manner sealed,  
and bleeding is not so profuse as it  
otherwise would be.

The man lay there, but he wasn't able  
to bandage his own wounds. The med-  
ics tried to reach him but were fired  
upon. One was hit, and the trees around  
the man were white with scars of the  
machine-gun bullets that kept the med-

ics away. Finally—after seventy hours  
—they managed to reach him.

He was still conscious, and for the  
medics it was a blessing that he was  
conscious; and for the man himself it  
was a blessing. For during the dark-  
ness the Germans had moved up to the  
wounded man. They took his field jack-  
et from him, and his cigars. They  
booby-trapped him by setting a charge  
under his back so that whoever lifted  
him would die. So the wounded man,  
knowing this, lay quietly on the charge  
and told the men who came to help him  
what the Germans had done. They cut  
the wires of the booby trap and carried  
him away.

The green monument of Hurtgen is  
a bitter thing.

## An "Air Arm" For Forestry

(From page 59)

a message showing the best points to  
attack.

Not all of the CAP Texas Forest Pat-  
rol work hinges on radio communica-  
tions. Messages in bright red bags with  
yellow streamers are dropped to farm-  
ers who are burning brush and fields  
asking their help in keeping the fire un-  
der control. Others are dropped at set-  
tlements appealing for volunteer help in  
extinguishing nearby forest fires.

The Texas Forest Service feels that  
this personalized system of messages is  
helping greatly to reduce forest fire  
losses. In most instances, the person  
who receives one will give a friendly  
wave of his hand. But in one case the

sight of a CAP plane zooming down to  
drop a message to a group of negroes  
had the opposite effect. They all ran  
into a house, leaving the message un-  
touched.

Aerial patrol is used only during pe-  
riods of high fire hazard. But in Oc-  
tober more than 10,000 miles of patrol  
were flown over a drought-parched for-  
est, mostly in a period of ten days. In  
that time the crews reported 179 fires  
and dropped a hundred messages.

Besides fire patrol, other uses have  
been found for the airplane in forestry  
work. Last January, when the Texas  
piney woods section was hit by one of  
the worst sleet storms in its history, two  
forest patrol planes mapped the damage  
in three days. Later, after the roads  
were passable, a survey of the area from  
cars substantiated the map made from  
the planes in every respect.

Planes also have been used in Texas  
to scout damage to insect-infested pine  
and hardwood timber, to locate high  
points for lookout tower sites, to trans-  
port industrial operators over their tim-  
ber holdings, to check on the survival  
of forest tree plantations and to do tim-  
ber type mapping.

The Texas Forest Service is so en-  
thusiastic about aerial patrol that it is  
making postwar plans to purchase ad-  
ditional planes for fire protection and  
other uses and to hire ex-servicemen to  
fly them. The plane with radio is giv-  
ing a modern flexibility to fire fighting  
which with newly developed mechanized  
tractors resembles in many respects the  
"blitz" attack of today's warfare. It is  
safe to predict that other forestry or-  
ganizations in the nation will also be  
adding an "air arm" to their ground  
system.



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## Beaver Crisis in the Northeast

(From page 73)

Almon P. Griffin, who covers the district most thickly infested with the animals. "They have no place in this part of the country. We find that the value of their furs does not amount to one-tenth the damage they do to timber and crops and other things."

Said H. S. duMont, director of the Division of Fisheries and Game of Massachusetts: "The beaver problem in our state is rapidly getting out of hand because of conflicting opinions. To date, where it seemed necessary, the division has taken drastic action."

"It is the opinion of the division that beaver are not an asset to our wildlife. They will not stay put, and while an interesting creature, and of considerable economic value, their range is too great for an area as congested as Massachusetts. It is our understanding that a bill is to be presented to the state legislature to permit trapping. This will receive the support of the division."

That bill will doubtless stir up heated controversy, for the beavers of Berkshire have proven an attraction second only to the once famous corrals established on October Mountain by Harry Payne Whitney and stocked with deer, elk, moose and wild goats. At the Lenox Sanctuary, the present warden, a highly trained wildlife expert and an ardent conservationist, declares rather ruefully that the beavers have stolen the show to the neglect of the beautiful nature trails and other wildlife exhibits in Pleasant Valley. There are at least fifteen beaver dams on Yokun Brook today, half a dozen ponds and a beaver population inside the sanctuary of eighteen or more. The trout pond is of little value, as the water is too warm and trout have vanished.

The ponds are, in some cases, very beautiful, but others are decidedly ugly. One, abandoned, is a mere muckhole with dead stubs sticking up. Big trees, some four feet in diameter, have been cut down or girdled and killed. Hundreds of small trees have been felled and left on the ground, to no use. Nature trails, bridges and paths have had to be relocated or rebuilt several times because of the ever expanding beaver works. A high concrete dam with a spillway, built to make the original beaver pond permanent, has been comically taken over by the beavers which have repeatedly stacked long logs on end up against it, blocking the overflow and going man one better in raising the water level.

Such, in brief, is the situation in completely protected territory where beavers have been introduced and encouraged. Out in the wilds or on not-so-wild farms

of the region, complaints of damage so far have been comparatively few. But without some sort of trapping, the situation, according to Director duMont, is sure to get entirely out of hand soon.

In New York, conservation officials have of necessity made a long-time study of beavers, and as a result, trapping is permitted. Nevertheless, they are still a problem in the Empire State. Timber is being destroyed, valuable lands flooded, and within forty minutes of Broadway some years ago, a state highway, newly built, was flooded again and again by beavers.

A comprehensive study of the situation in New York, completed in 1941, sums up the situation with these words: "Someone has defined a weed as merely a plant out of place. Even beavers can be in this category unless they are properly managed."

The trick, then, is to manage beaver properly.

In the published report of this investigation are listed nine reasons why beavers are undesirable—seven favorable to them. However, no conclusion is reached as to what eventually should be done about the situation.

"Nuisance trapping" by an all-year crew with a truck proved an expensive failure as a remedy for widespread complaints in New York, and has been discontinued, save for extreme emergency cases. Trapping by private individuals under license is permitted in many counties, according to the beaver population and "the balance of conflicting interests."

From 1941 to 1943, in five counties east of the Hudson, trappers took about 500 beaver pelts. This so balanced the situation that in 1944 only one county, Rensselaer, out of the five, was open for trapping. The wild, mountain lands of the Taconic State Forest, which has some 10,000 acres of steep, brook-fed country, are a haven for beavers. Here they have constructed prodigious dams, one or two at least 200 feet long and six to eight feet high, backing up water in one case for a mile and a half and killing off a fine stand of spruce timber.

On the other side of the ledger, there is, of course, the high value of beaver pelts, today up to \$40, for a single "blanket pelt." Around \$500,000 have been realized for the 31,000 pelts taken since 1924. And prior to 1941, pelts averaged only \$17 each.

Beavers may be "friends of the forest," but in the Northeast they certainly are not friends of the farmer, the railroad man, the highway engineer, or the



lumberman; in many areas they are "misplaced weeds." The big problem is to keep them in locations where they belong. But it is doubtful if this can be accomplished short of immense expense, or without increased controlled trapping

and transplanting of many to areas remote from civilization, or through concentrated use of beavers on flood control and water conservation projects as is now done in some regions of the country.

## Cinchona Hunter

(From page 68)

Nor has the custom whereby the women work and the men loaf much excuse now. The amount of hunting done is negligible. Game is not abundant; and their ramshackle, muzzle-loading guns are now rendered useless by lack of ammunition. Bows and arrows are not used.

Handcrafts are a possibility, and some of their weaving is excellent. But they have no idea of making and selling items as a matter of business. Every piece is an heirloom and they are loath to part with it.

The day I remember best among the Indians was when Mama Jose Domingo Nacajui, chief of the Peivus in the Tucurincu Valley, took me along with him far up to the head of the valley to where a lone *cansamaria* stands. The place is called Saicaiany, and is where boys at certain times of the year are trained in their tribal songs and dances. We sat in the sun on little stone seats and Jose Domingo explained to me in confused but fluent Spanish some of the mysteries of the world as he saw them.

The grandfather of us all — red, white and black — is Jate Sulee who lives in a cave high up in the *paramo*. He made everything and everybody. Knives, pots, guns and so on all were originally invented by the Indians and given to the whites. Monkeys are descended from men. The extinct Tairona Indians had been turned into tigers. Their stone-paved trails so common in the Sierra had been blown into place by the god of the winds. There are nine classes of dances and 100,000 songs in honor of Jate Sulee. When I hinted that I would like to see some, Jose consented, and, holding a stick as if it were a flute,

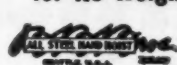
he danced and sang in rapturous ecstasy to the god of his dying race.

To become acquainted with the high rain-drenched forest where the cinchona tree grows is another problem. The first thing that strikes a forester trained in the pure stands of our West and South, is the bewildering number of species. The rule is that the nearer the equator, the greater the proportion of the flora in tree form; and the Sierra is only eleven degrees north. A compensating factor is that the variety in the leaves, bark and especially the flowers is much greater than in our woods. In fact, the number and beauty of the flowering trees is astounding. As the weeks go by, certain ones become familiar and one feels less like a complete stranger.

Unfortunately, although this method of repeated observation will lead one to the conspicuous but low-grade *Cinchona pubescens*, it is not so much help in finding the *Cinchona officinalis*, in the thin, bitter bark of which are hidden the precious anti-malarial alkaloids. It is an insignificant looking little tree, hardly bigger than what we would call a sapling, scattered in the understory of the high steep mountain jungles where the foliage is dripping wet and the ground soaked in water. Bitter bark, narrow, delicate, opposite leaves with three to ten veins, large stipules, pannicles of fragrant purple and white tubular flowers, tiny seed pods that split open from the bottom up—such are the standard characters given for identifying the quina tree.

The trouble is that there are literally dozens of trees that look much alike and that are called *quina*. The last step is to refer to any tree as *quina* if they think

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Field identification, therefore, is difficult. I have watched a professor of botany stand within a few yards of quinine trees growing in an open pasture and not recognize them. I have talked about *quina* to an old explorer who had just returned from a three months' trip in the Andes. He had followed the trails of the bark gatherers for days, and yet could not recall ever having noticed the tree. No wonder I was so often reminded of the proverbial needle-in-a-haystack.

Yet, along with the hardships involved in any exploration, the man in search of quinine has certain compensations all his own. First and foremost, of course, is that our fighting men need all the quinine they can get. Moreover, anyone who has seen cinchona growing wild will agree that it was hidden in some of the most magnificent mountain scenery that can be found.

It is hard to imagine anything more beautiful than dawn in the Sierra Nevada de Santa Marta. On the west side it is necessarily slow, for the highest range is to the east and the valleys are deep. But even in the grey half-light of the earliest morning the bird life begins to call, and by eight the mountainsides are fairly ringing. Pheasants, doves, turkeys, orioles, parrots, red howlers and the solemn-faced capuchin monkeys that bark like a pack of dogs—the woods seem alive with them. Presently the sun is shining from a cloudless sky and the foliage, wet from last night's rain, is shimmering as if hung with crystal.

But watch out and plan your day well.

By ten, the clouds are rolling up and by noon they are sending down a torrential downpour. The trails are soon troughs of mud and the cinchona hunter is gasping and shivering with misery.

My exploring was cut short when, near the southern end of the Sierra, I was bitten on the right hand by the deadly fer-de-lance. I was climbing up a steep gully with only one native guide. There was a sharp sting and a glimpse of an ugly, dirty yellow-and-black snake disappearing beneath a log. My guide, Silvano, was eager to chase it down, but my idea was to apply a tourniquet and return for help with all speed.

We reached an Indian hut and a trail half an hour later. Here Silvano left me in the care of some Indian women and went after a mule. I am sure they meant to be kind. They brewed up a concoction of bitter herbs; and they entertained me with the histories of Pancho and Sancho, Pablo and Pedro, all of whom had been bitten by snakes—and died.

Late in the afternoon the mule finally came and I began the long trail back. Fifty hours later I reached Dr. Jorge Comacho of Santa Marta, who had traveled more than 200 miles to meet me. By that time my arm, black and swollen, was growing colder every minute, and I was in the last stages of exhaustion. But I did reach him and my arm and my life were saved.

They were saved for more exploration, I hope. My enthusiasm is not dimmed, and I mean to go back and finish the job.

### AUTHORS and PHOTO CREDITS

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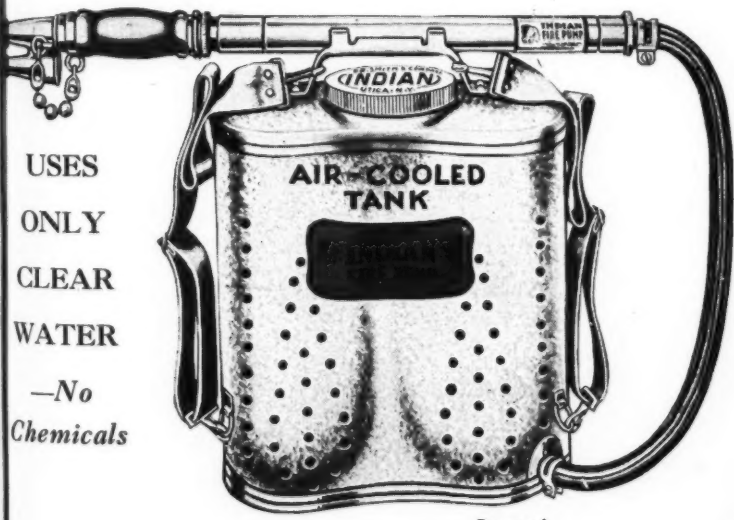
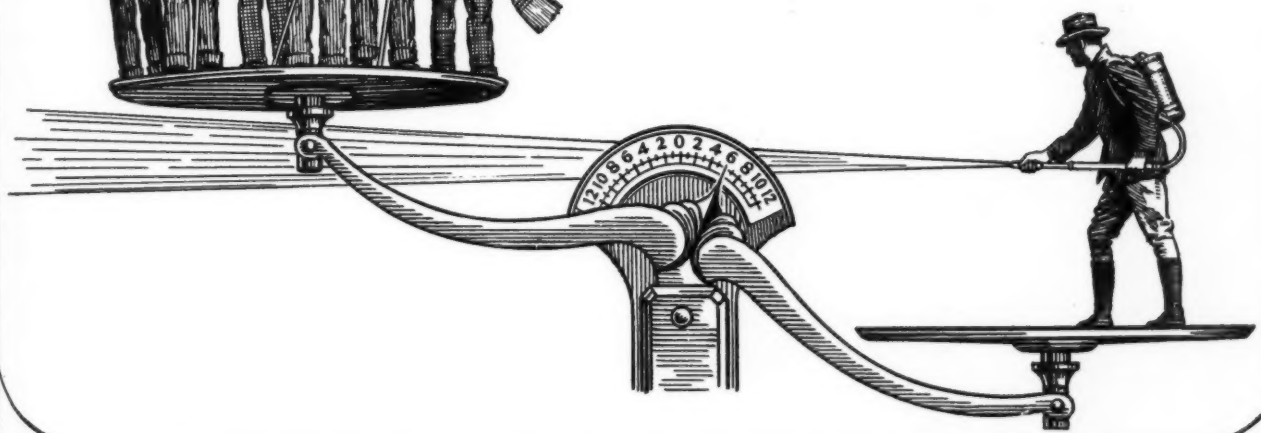
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Life size photo of hybrid blueberries.

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<b>RHODODENDRON maximum</b>	40c ea.	25c
Large; white flowers in July		
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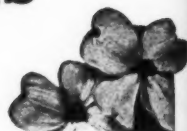


(Insert) Mt. Laurel as it arrives. (Photo) R. maximum 3 years after planting.

Write for our new 1945 Short Guide (free, but 25c West of Iowa) which lists and describes more than 1200 trees, plants, shrubs, both small and large sizes.

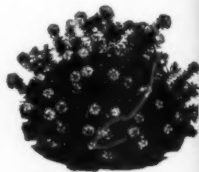
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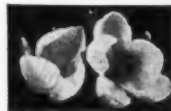
Pink Dogwood

Showy red form of our best native flowering tree. Nice 2½ to 3 foot plants \$3.50 each.



Daphne cneorum

Dwarf bushy evergreen shrub with fragrant pink flowers in May and September. A gem. 9 to 12 inch \$1.90 each.



Franklinia in Fall

The only autumn flowering tree. August to frost. White bloom, crimson fall leaves. 3 to 4 foot blooming size \$3.75 each.



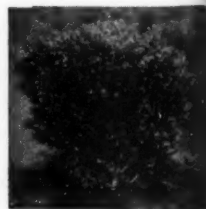
Birch for Clumps

Plant 2 or more populus trees in one hole for quick inexpensive clump effects. Gray-white bark. 4 to 6 ft. trees. 5 for \$3.00.



Upright Yew Hedge

The best evergreen hedge known. Hardy, trouble free. Set 18 inches apart, 25 plants make 37 feet of hedge that nearly takes care of itself. The 25 plants now 12 to 15 inches twice transplanted for \$20. (75c each in lots of 50 up).



Berrybush Yew

(Taxus media kelsey)

More berries than any other Yew, dark green evergreen rather dwarf, bushy. Covered with brilliant red berries in autumn. 18 inch B. & B. plant for \$3.75.



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